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**SCHOOL REVIEW**

A JOURNAL OF SECONDARY EDUCATION

*Edited by*  
THE FACULTY OF THE SCHOOL OF EDUCATION OF THE  
UNIVERSITY OF CHICAGO

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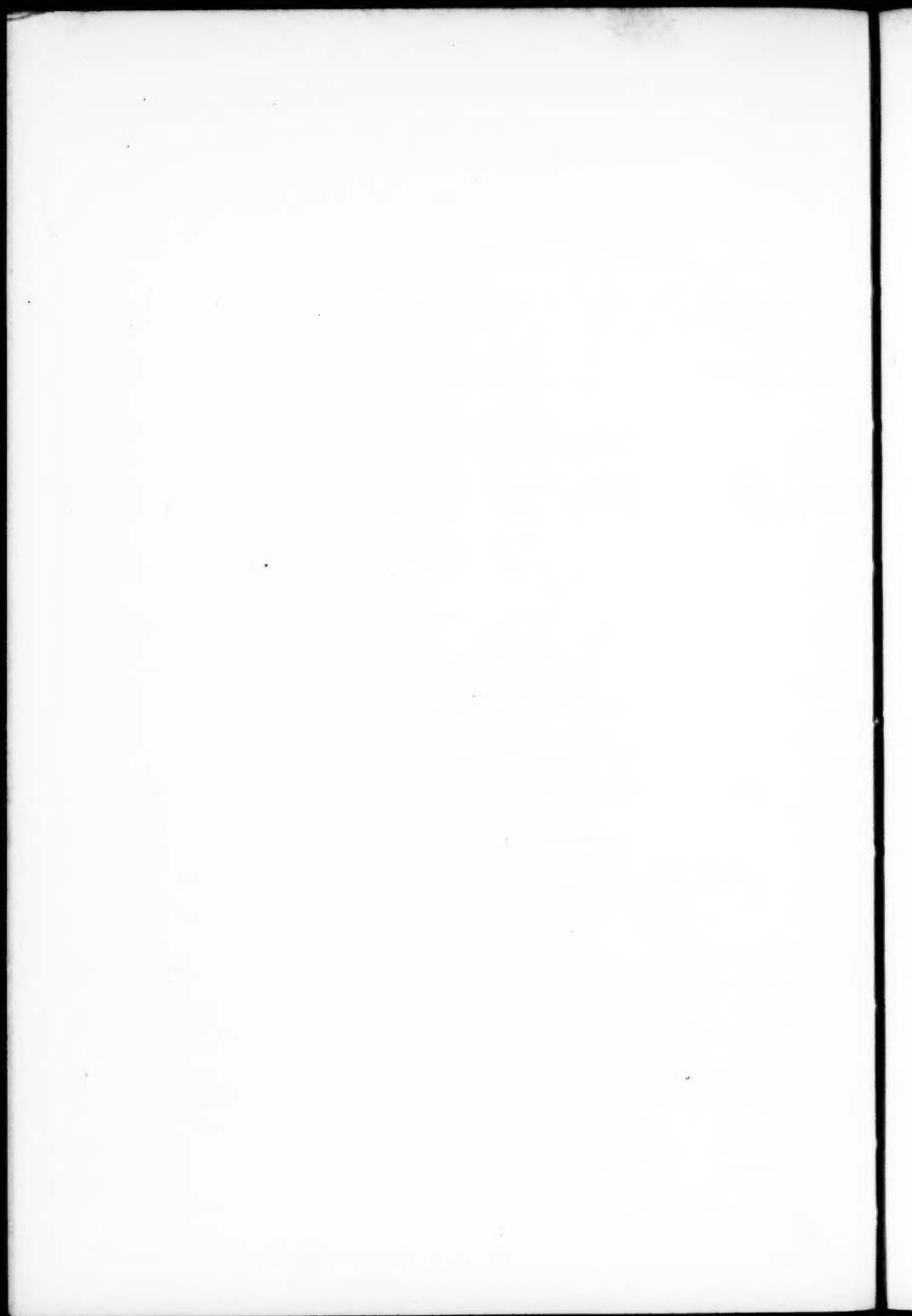
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# THE SCHOOL REVIEW

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NUMBER 1

## Educational News and Editorial Comment

### SCHOOL FUNDS IN CALIFORNIA

The following news item is contributed by the editor of the *Sierra Educational News*:

On November 2 the voters of California by a majority of more than 200,000 passed a constitutional amendment containing some of the most forward looking educational provisions ever voted into a state constitution.

The amendment as adopted provides that hereafter the state shall contribute out of its treasury toward the support of the public schools an amount which shall be not less than \$30 per pupil per year in average daily attendance in the elementary and high schools, and that the counties must raise in addition at least \$30 per pupil in average daily attendance in the elementary schools and at least \$60 per pupil in average daily attendance in the high schools.

The amendment also provides that all of the school moneys contributed by the state, and 60 per cent of the school moneys raised by the county, must be used for the payment of teachers' salaries. With the moneys provided by this amendment California will be able to establish a state-wide minimum salary of fully \$1,300 a year.

The amendment redefines the state school system and makes the kindergarten schools a part of the system. The amendment also provides for normal schools or teachers' colleges.

The amendment was proposed and campaigned for vigorously by the California Teachers' Association. The campaign was under the direction of a committee of the Association. This state-wide committee, of which County Superintendent Mark Keppel of Los Angeles was chairman, was appointed last April to draft the amendment, to submit it by initiative petition, and to

procure its approval by the voters. The committee drafted the amendment and placed it upon the ballot with many thousands of signatures in excess of the 55,097 that were needed.

The Association carried the fight for the amendment into every city, town, and school district, in the state. A "Primer of Education and School Finance" was printed in the *Sierra Educational News*, the official organ of the Association. This primer was then issued in pamphlet form for the use of the campaign workers throughout the state. Nearly two million campaign cards with the slogan, "A Square Deal for Every Child," were systematically distributed among the voters. Hundreds of "Amendment Sixteen" meetings were held. Thousands of automobiles carried the "Amendment Sixteen" appeal.

The teachers secured most generous support from the press. Through moneys raised by teachers, display ads, giving all the facts, were run in the principal newspapers throughout the state. The movies took a prominent part in the campaign. Many clubs and fraternal orders co-operated in the campaign of education. The school forces of California acted as a unit. The entire cost of the campaign was borne through contributions made by superintendents, principals, and teachers.

The following statement made by Will C. Wood, superintendent of public instruction, to the voters of California preceding the election proved to be an eloquent and effective appeal for support for the amendment:

"The proposed constitutional amendment relating to the public schools—Number 16 on the ballot—is the most important school measure submitted to the people of California since the first constitution was adopted in 1849. It is the Magna Charta of education in California.

"It establishes, definitely, in the constitution the terms under which state, county, and school district become partners in the support of the public schools.

"It fixes the annual state contribution for elementary schools at \$30 per pupil, which is an increase of approximately 50 per cent. It also makes it impossible to reduce this amount except by vote of the people.

"It fixes the annual state contribution for high-school purposes at \$30 per pupil, which is an increase of 100 per cent.

"It writes into the constitution the provisions of the county high-school fund bill, which more than any other law has promoted the development of high schools in California. This bill is subject to repeal at any time by the Legislature. Amendment 16 makes its repeal impossible except by vote of the people.

"It writes into the constitution the provisions of the county elementary-school tax law, making its repeal impossible except by vote of the people. It will be recalled that the Legislature of 1917 passed A.B. 1013, which abolished the minimum county tax for elementary and high-school purposes. The county school tax was saved only by invoking the referendum against A.B. 1013 at great expense to the school people. Number 16 on the ballot will make similar attacks on the elementary and high schools impossible.



"It applies the principle that money for school purposes should be raised by taxes levied according to ability to pay, and that funds thus raised should be distributed to school districts according to the needs of the children to be educated.

"It will reopen the hundreds of schools now closed for lack of teachers because of inadequate salaries. It will encourage young people to enter our normal schools to prepare for teaching. It will enable us to restore the efficiency of the schools.

"It will equalize educational opportunities in California. In school matters, California must make no distinction between rich child and poor child; rural child and city child; mountain child and valley child. In the sight of God and the state of California, all children are created equal—all are entitled to equal educational opportunities.

"It guarantees that all the money raised by the state and 60 per cent of the money raised by the county for school purposes shall be used for teaching. The money cannot be used for the construction of elaborate buildings to satisfy community pride at the expense of the children. It must be used for education."

#### THE MEETING OF THE DEPARTMENT OF SUPERINTENDENCE

The Department of Superintendence and its affiliated organizations will meet in Atlantic City from February 24 to March 3, 1921. The general sessions have been arranged this year so as to make it possible for those who attend this meeting to go to Washington for the inauguration of the President.

The first general session falls, according to this arrangement, on Sunday. There will be morning and evening services at which addresses will be delivered by Henry Van Dyke and John H. Finley.

The general topics of subsequent sessions are as follows:

Monday morning: The Great Problem in American Education—The Rural School.

Monday afternoon: Outlines and Accomplishments of the School System I Represent.

Tuesday morning: Best Use of the Superintendent's Time. First business meeting.

Tuesday afternoon: The Probable Future of Education in the United States—Its Policies and Programs.

Wednesday morning: The Great Need of the Schools—Better Teaching. How Shall We Get It?

Wednesday afternoon: Departmental meetings.

Thursday morning: How May the Public Understand What Service the School Is Rendering the Community? Local Influence of the Russell Sage Foundation's Ranking of Montana's Educational System. Final business meeting.

The evening programs, beginning Monday evening, include addresses by President Butler, Sir Auckland Geddes, Congressman Towner, and Commissioner Claxton.

#### THE NATIONAL SOCIETY OF COLLEGE TEACHERS OF EDUCATION

President Kelly of the National Society of College Teachers of Education supplies the following program for the meetings of that Society.

First session, Friday morning, February 25, 1921. General session, devoted to committee reports.

Second session, Friday afternoon, February 25. Ten-minute reports on the technique and conclusions of the following studies:

1. Studies in the Use of Intelligence Tests.
  - a) In Engineering Schools. L. L. Thurstone, Carnegie Institute of Technology.
  - b) In Brown University. Stephen S. Colvin, Brown University.
  - c) In Goucher College. Agnes L. Rogers, Goucher College.
  - d) In Minneapolis High School. W. S. Miller, University of Minnesota.
  - e) In Lawrence Junior High School. R. A. Kent, Duluth City Schools.
  - f) Their Relation to School Accomplishment Tests. W. L. Dearborn, Harvard University.
2. Studies in Curriculum-making.
  - a) For Supervisors. Ernest Horn, University of Iowa.
  - b) For Women's Colleges. W. W. Charters, Carnegie Institute of Technology.
  - c) In the Social Studies in Elementary and Junior High Schools. H. O. Rugg, Teachers College, Columbia University.
  - d) In Information about Vocations. John M. Brewer, Harvard University.
  - e) For Graduate Work in Education. Charles H. Judd, University of Chicago.

Third session, Saturday morning, February 26:

1. Measuring Teaching Ability. Ten-minute reports on:
  - a) Standards of Teaching Ability. S. A. Courtis, Detroit Public Schools.
  - b) Measuring "Teaching Personality." A. R. Brubacker, New York State College for Teachers.
  - c) A Teacher-Improvement Score Card. S. B. Davis, University of Pittsburgh.

2. Scientific Method of Determining the Distribution of School Funds. W. F. Russell, University of Iowa. Discussion by members of the Society.
3. The American School Citizenship League and the Training of High-School Teachers. (Speaker to be announced.)
4. Business meeting.

#### EMPLOYMENT SERVICE IN CO-OPERATION WITH PUBLIC SCHOOLS

Among the many lines of service supported by the federal government, there is probably none of more significance to educators than that developing under the Junior Division of the United States Employment Service. This service is established especially for the benefit of young people between fourteen and twenty-one years of age who leave school to seek employment.

The department classifies its functions under two heads, production and distribution. The production phases are those of training and have to do with bringing to students that information and those experiences necessary for the development of a purposeful and effective training program. From the point of view of distribution, the department is interested in aiding young people in the matter of employment adjustment. Adequate aid during the early period of work experience includes a certain amount of follow-up with a view to readjustment. Such follow-up affords an opportunity for bringing together reliable information concerning the efficiency of the product of the schools as well as information essential in the progressive revision of course of study material. The distributing functions include those commonly expected of efficient distributing agencies in the commercial field. They afford an indispensable index covering production efficiency.

The work of the federal department is this year confined to the development of a few local centers generally in co-operation with boards of education, with a view to establishing satisfactory administrative practice. Co-operation is being restricted to some twenty or twenty-five cities. In many of these active organizations work is now under way. The federal department is in a position to function as a clearing-house for successful practice in the fields represented. It is also prepared to supplement local budgets through the payment of salaries of administrative officers,

placement workers, or clerks assigned to local offices. The government franking privilege is extended for all correspondence having to do with placement activities. The department is also in a position to loan government furniture for the equipments of junior guidance and placement offices.

Economy in education necessitates the utilization of both school and work experience in the all-around development of our citizenry. Junior Employment Service in co-operation with public schools stands for the development of such a program.

E. FILBEY

#### A HIGH SCHOOL AS A COMMUNITY CENTER

How a county high school can be of general service to the community in which it is situated is fully exemplified by the Fergus County High School of Montana. This institution has become a social center in a variety of ways. The following is a letter which has been sent out to the members of the community by the principal of the school.

The Fergus County High School is your institution. In it are trained the boys and girls of the county, and a large number of adults, both men and women, attend also. For those of you who cannot attend we want to call your attention to some of the assistance this institution offers to individuals, to schools, and to whole communities.

The high school is a clearing-house for the needs of the community. It will analyze ore, water, soil, and food. It will test milk for butter fat, seed for germination, soil for moisture, and cloth for adulteration; furnish instruction in cheese- and butter-making; identify weeds and poisonous plants; give information on crops and marketing, and help organize co-operative enterprises; assist in vaccination of stock, planning of barns, and furnish information on all agricultural subjects.

It will send out circulating libraries, bulletins of all kinds, lists of books, magazines, and advice on suitable reading material for the home on various subjects; help to plan programs, games of all kinds, pageants, and plays; furnish constitutions for community-center organizations, and send out material for all these activities.

It will help plan and furnish cost estimates for farm buildings and typical houses, furnish information on income tax, land, and bin and hay-stack measurements, compute interest, and help you with any mathematical calculation.

It will figure sizes of pulleys, line shafts, pump jacks, emery wheels, and feed grinds, and assist you with your automobile and tractor troubles.

It will plan labor and home-saving devices for you, furnish aid in farm and household accounting, public statements, make out balance sheets, and do multigraphing and typewriting work.

It will help in planning the interior arrangement and decorating of the home, furnish recipes, menus, health suggestions, dress patterns, and will do hemstitching work.

Your institution wants to be of service to the community. Won't you give us a chance? If we can be of assistance in any way write for further information.

One can read between the lines of this invitation to apply for assistance many educational applications of the courses in the school in literature and mathematics, in agriculture, in science, and in home economics. One cannot help realizing also that the conception of education which is expressed in this letter is much broader than that which is in the minds of those who think of the high school as merely an academic institution intended to prepare a small group of students for advanced courses or for professions in the community.

In matters of support such a high school commands whatever the community can afford. The school has a dormitory for out-of-town students; it has a large equipment for science and social projects. In short, it takes the place in the county which the college of a generation ago did for many a frontier community.

#### PRESIDENT BUTLER'S CRITICISMS OF AMERICAN SCHOOLS

President Butler of Columbia University has incorporated into his annual report certain general criticisms of the public-school system of the United States. When an authority like Dr. Butler, who has been connected with all branches of American education for a generation, makes pronouncements of the kind that are found in this report his words are sure to arouse much discussion and careful consideration on the part of both school officers and laymen.

A part of his criticism is directed toward the elementary school and a part toward higher education. Two passages may be quoted for special comment. The first is as follows:

The elementary school, being universal, well organized, and easily accessible, has been seized upon by faddists and enthusiasts of every type as an instrumentality not for better education but for accomplishing their own particular ends.

The simple business of training young children in good habits of diet, and exercise, and conduct; of teaching them the elementary facts of the nature which surrounds them and of the society of which they form a part, and of giving them ability to read understandingly, to write legibly, and to perform quickly and with accuracy the fundamental operations with numbers, has been pushed into the background by all sorts of enterprises that have their origin in emotionalism, in ignorance, or in mere vanity.

There is at least a partial answer to Dr. Butler's charges. There is at the present time in the United States no social organization which reaches all of the people so readily as does the public school. It was the experience of all of the organizations which were at work during the war that they could reach families most directly through the schools. In this respect our generation differs entirely from earlier generations. There was a time when the church could be used as a medium of general social communication, but that time has passed and anyone who wishes to carry on a universal campaign of betterment thinks naturally of the schools.

It will be very difficult to draw a line, in view of present-day conditions, between legitimate education of the people with regard to all of their different activities and illegitimate propaganda of the sort against which Dr. Butler is making his criticisms.

The criticism of the high schools and colleges is even more drastic than that of the elementary schools.

Through lack of knowledge of educational value and their fear of an uninformed public opinion the secondary schools and the colleges have very largely abdicated their place as leaders in modern life and have become the plaything of whatever temporary and passing influences may operate upon them. In the hope of becoming popular they have thrown overboard principle. Throughout elementary school, high school, and college, teachers are too often not teachers at all, but preachers or propagandists for some doctrine of their own liking. One would think that the business of teaching was sufficiently simple and sufficiently important to be kept unconfused with other forms of influence; but such has not been the case. Very many teachers are preachers or propagandists first and teachers afterward.

Here again there is some answer to Dr. Butler's charges, even if one is disposed to admit that they contain an element of truth. It is pointed out by an editorial writer in the *New York Evening Post* that



critics of American modern education always forget one fundamental fact—that the United States today is trying to educate a much larger proportion of its people than any other nation in the world at any period of history. That is why comparisons of college students with those of England, for instance, are valueless. We give secondary and higher education to so large a proportion of our people that inevitably the process of selection cannot be as rigid.

The fact is that in American education the balance between irrational expansion and legitimate enlargement is so delicate that both critics and defenders of the school system are right. In like fashion, the situation is so complex that one can readily discover grounds for both the most extreme optimism and the most abject pessimism. The danger of general statements is that they are not discriminating enough to be the whole truth. For this reason it is doubtful wisdom to emit such general condemnation as that which President Butler has written into his report, and it would be equally apart from the point to attempt to deny that American education is in need of very radical improvement.

There ought always to be a public demand for a bill of particulars when one writes about education. If it is said that school has too many propagandist movements occupying the platform at morning assembly and distracting the class when it ought to be engaged in the study of arithmetic, it is fair to ask that details be specified. It is not wrong to have a health campaign in schools. It is not wrong to talk about civic improvements. It probably is wrong to ask girls to take charge of tag day for some enterprise which in itself may be not wholly unworthy.

President Butler ought to write a book or else he ought not to write a paragraph.

#### PERMANENT TENURE

There has been a steady demand on the part of teachers, especially where they are organized so as to exert political influence, for permanency of tenure. In making such demands the teachers point out, very properly, that they cannot pursue their professional work without some assurance that they will not be interfered with and even displaced through petty political preferences and as a result of trivial criticisms. Teachers certainly have a right to protection in the exercise of their duties.

On the other hand, it is equally certain that the community has a right to be protected against teachers who do not keep themselves intellectually alive and who do not carry on the duties of their offices with an ever-increasing efficiency.

It is no easy problem to pass laws which will guarantee to teachers on the one hand and to the public on the other an equitable adjustment of relations. The problem here referred to has recently taken a very concrete form in the city of Portland, Oregon. The law of 1917, under which the city is operating at the present time, provides that teachers who have been on trial for a period of two successive years and have been approved shall be put on a permanent list. Thereafter there is no possibility of transferring them to a position with a lower salary or of dropping them from the list without a trial before a board of commissioners. The specific items of the present law which give permanency of tenure are detailed in the following paragraphs:

On the first Tuesday after the first Monday in January in each year the presiding judge of the circuit court of each county within which is located a school district or districts having 20,000 or more persons shall appoint three disinterested persons, citizens of the United States, over the age of twenty-one years, and residents of the state of Oregon and of the county in which said district or districts is located, to act as commissioners as herein provided, for one year and until their successors are appointed and qualified, who shall serve without pay.

Said commission shall formulate such rules and method of procedure as it shall deem best calculated to secure the ends of justice in a summary and effectual manner at the least cost and time. At the termination of each investigation or hearing said commission shall render its decision in writing, signed by each commissioner and filed with the clerk of the school board of said district. The decision of any two of said commissioners shall be the decision of the commission. The decision of said commission shall be final and conclusive upon the teacher and the school board. In all cases where the decision of the commission is in favor of the teacher, the charges shall be physically expunged from the record.

When it is proposed to dispense with or discontinue the services of any teacher on such permanent list at the conclusion of a school year, such teacher shall be advised of such proposed action at least two and one-half ( $2\frac{1}{2}$ ) months before the expiration of such school year. Notice of such proposed dismissal shall be ordered by the board and prepared and signed by the clerk and served on such teacher in writing and shall advise such teacher of the proposed action and all reasons therefor. A copy of such notice, together with a full and com-



plete record of all action and proceedings in relation thereto, shall be retained as a record in the office of said clerk. Such teacher shall be entitled to a hearing on such proposed action as above provided.

All complaints and criticisms made against any teacher on such list shall be in writing and signed by the person preferring the same, and filed with the superintendent and the same may be inspected at any time during office hours by such teacher or any other person, unless expunged from the record after a hearing, as hereinafter provided. All charges shall be preferred by the superintendent, either upon his own motion or upon the complaint or criticisms made in writing and filed with him as above provided. If the superintendent shall fail or refuse to prefer charges against any teacher after written complaint or criticism has been made, then the person or persons filing said complaint or criticism may present the same to the board of directors after notice to the superintendent. Upon said charges being filed with the board by the said superintendent or other person, the board of directors shall, if the charges seem to them sufficient, cause the notice to be served upon the teacher as above specified, and thereafter all proceedings for investigation, hearing, and determination shall be conducted by the commission.

The board of education is now making an effort to secure a revision of this law. The first item of change is one which provides that, instead of putting the teachers on a permanent list, the board shall after two years of trial employ them on indefinite contracts. The commission which passes judgment when teachers are not to be retained at the end of a year is done away with entirely in the new law proposed, and in place of the commission the board is authorized to give final judgment. The procedure which the board must adopt in such cases is fully described in Section 6 of the proposed new law, which is as follows:

Except as provided in Section 7, teachers so employed shall only be dismissed at the end of a school year. When the board shall propose to dismiss a teacher at the end of a school year, it shall cause the superintendent or principal to notify such teacher on or before March first of the deficiency or fault on account of which such dismissal is contemplated. If there should in the opinion of the superintendent or principal be no sufficient improvement in the work of such teacher by April first, the teacher shall be notified in writing on or before April 15th that the board desires to terminate the contract at the end of the school year. A teacher who is not willing that the contract shall be so terminated shall, within three days after service of such notice, serve written notice upon the superintendent of her unwillingness and shall thereupon be provided with a copy of any charges or complaints which may have been filed against such teacher and a statement of the grounds upon which the dismissal

is proposed to be made. The board shall thereupon cause to be given to the teacher ten days' notice of the time and place of hearing and at such time and place shall hear any evidence that may be adduced in support of the charges or of the teacher's defense to the same. Proceedings before the board shall be summary and the board shall pass upon the admissibility of evidence, the length and character of arguments and other proceedings, subject, however, to the duty to give a fair and reasonable hearing to the teacher's defense and to apprise the teacher fully of the grounds upon which it is proposed to terminate the contract. If the board desires to base its action upon any grounds not included in the written charges which have been served upon the teacher, opportunity shall be given the teacher to make defense to them, if reasonably necessary, at a future meeting. If requested by or on behalf of the teacher, the decision of the board shall be rendered in writing with the grounds upon which it is based. Concurrence of four members of the board shall be necessary to a decision. Such decision shall be a final determination of the matter. The clerk shall preserve a copy of the notice, together with the charges and a complete record of all actions and proceedings in relation thereto in his office as a permanent record. In case of a decision fully exonerating the teacher from charges, all such charges shall be plainly marked "disproven" or "disallowed," by rubber stamp or otherwise, so as to indicate upon their face what disposal is made of them.

#### PUBLIC ACCOUNTING ON SCHOOL BOOKS

The Macmillan Company publishes under the title *The Round Robin* a house organ of the Educational Department for the use of its agents. The issue for November-December contains a leading article on textbook production. This article is a defense of the publisher against the charge that he is asking too high a rate for his products. At the end of the article there is a statement made of the cash actually received from dealers in school districts on seven books published by this company. The second column from the right of the table gives the net profits, and the last column makes a statement of the percentage of profit to the company.

This table is of a type that ought to be encouraged. There is a great deal of skepticism in the minds of the public with regard to the conduct of the school-book business. The probabilities are that three-fourths of this skepticism is without any justification whatsoever; the other one-fourth of the skepticism arises out of the observation, which can be made at almost any time, that the methods of marketing the books are questionable and wasteful.

A table such as that here published ought to be prepared for every book that is used in the schools. It is just as legitimate that the school public should ask for this kind of an accounting as that states should demand the publication of full statements of the operations of a life insurance company or a bank.

The *School Review* has several times called attention to the fact that a book-publishing company is in reality a public-service company. As organized at the present time, most of the book companies are beyond the control of the teaching profession and, indeed, in most of their operations, beyond the direct control of the state. Their influence, however, is so large in determining the content of instruction in all grades of schools that anything which can be done to make them realize their relation to the public is genuine gain for the educational system.

In the hope of encouraging other book companies to see the importance of the sort of thing that Macmillan has done and also in the hope of encouraging Macmillan to do more of the same sort of thing, we print the full table, thus giving a number of books the

ACTUAL PROFIT ACCRUING TO THE MACMILLAN COMPANY FROM  
THE SALE OF TYPICAL SCHOOLBOOKS AT CURRENT PRICES

Author	Title	Cash Actually Received from Dealers and School Districts	Net Profit	Percent- age of Profit
Ashley .....	Early European Civilization..	\$1.65	.063	4
Baker and Thorndike..	Everyday Classics, Fourth Reader .....	.69	.058	8
Beard and Bagley .....	A First Book in American His- tory .....	1.26	.055	4
Canby and Opdycke....	Good English .....	1.20	.106	9
Emerson and Bender...	English Spoken and Written, Primer .....	.60	.047	8
O'Shea and Kellogg...	Health and Cleanliness.....	.90	.080	9
Van Wagenen.....	The Modern Speller, Book I..	.39	.014	4

benefit of a type of free advertising which is not at all common in these columns.

A PLEA FOR ARMENIA

The *School Review* makes it a rule to exclude propaganda material of the general sort which is supplied by philanthropic

and social agencies unless the matters involved are directly related to school work. On this occasion the rule is being set aside in order to give publicity to a short statement prepared by the Near East Relief Corporation which has its headquarters at One Madison Avenue, New York City. This corporation is more than a mere charitable organization. It is aiming to educate public opinion in the United States in such a way as to develop a consciousness of our international obligations. The plea is here made for an enlightened public opinion, and the editors of the *School Review* are glad to contribute in any way possible to this end.

No map today will tell you Armenia's story. It is changing too rapidly. The latest geography will confuse you if you try to get it from that source. The weeklies and the newspapers are telling it piece by piece, but just now the details are too overwhelming to leave any room for a view of the whole sweep of events since September 22, when the Turkish Nationalists began their attack upon Armenians. With the recent union between the Turks and the Bolsheviks, destruction seems certain for so small a nation as Armenia, ill-armed, half-clothed, and undernourished as she is from war, recent massacres, and exile.

Armenia is again under Turkish control. Think what that means when the war left Armenia free and the peace conference granted her independence! Now Erivan, the capital of the New Republic, has been evacuated by the Armenians. The Turks and their reinforcements have taken Alexandropol, the principal railway center of the country.

In cutting off all communications between Alexandropol and Tiflis, the Nationalists have destroyed Armenia's connection with Georgia and therefore with the outside world. The small Georgian army is now trying to defend Tiflis and keep the Turks out while thousands of refugees driven out of Erivan are struggling to reach Tiflis, little knowing how threatened it is by the enemy.

As the Turks take the choicest cities first, they drive the population out of them into the interior. The tragedy of this is that they are all fleeing to an absolutely barren part of the country where there have been no crops for seasons on account of lack of seed grain and local petty warfare. It will be impossible to ship supplies into the interior on account of the greed and watchfulness of the enemy forces.

Supplies are going forward, but Armenia needs something America can contribute so much more than the food and the old clothes being sent. She needs the sort of public opinion on the rights of a small nation that will keep her enemies at bay and give her a chance to exist.

## NEWS ITEMS FROM SECONDARY SCHOOLS

## STUDY CLINICS

*High School, Elmhurst, New York.*—For pupils who do not know how to study, for those failing, for misfits, generally, the junior high school worked out a plan of "clinics." The following directions for study were given:

1. Study your prepared lessons not less than 2½ hours daily. Make your own time-study schedule, apportioning the time among all your prepared subjects, and live up to it strictly.
2. Make conditions of work—light, heat, chair, table, etc.—favorable for study and have at hand the tools for study—pencil, paper, maps, rulers, compasses, dictionary, texts, etc.
3. Work intensely, concentrating on your lessons, but avoid fatigue and interruptions.
4. Understand the lesson assigned, noting carefully the teacher's directions and references. If in doubt, verify later by consultation with teacher.
5. Follow a plan similar to the following in your studying:
  - a) Review previous lesson.
  - b) Survey rapidly assigned material.
  - c) Then analyze it, step by step, selecting essentials, lines of connection, and points of contact, and build up a topical outline of your own.
  - d) Work out your own illustrations and applications of the principles you have studied.
  - e) Organize the advance lesson under topics and subtopics.
6. Understand definitions, formulas, dates, and outlines before you memorize them. Memorize by wholes, not by part.
7. Never ask for help from others, until you are compelled to do so. Learn to reason out things for yourself.
8. In case of absence or illness, make up lessons lost.
9. Learn to use textbook properly, especially its devices for your help—vocabulary, maps, illustrations, footnotes, appendix, etc., because they are there to help you.

In addition to these directions of a general nature, a few special directions were proposed in the case of three subjects.

## ALGEBRA

1. Interpret accurately signs and symbols, before you begin.
2. Understand the conditions of your problem before you attempt to solve it. Visualize the "stage-setting" of the problem.
3. Find out the principle governing its solution, and apply it step by step, verifying the result.
4. Master a model example and transfer its processes to other examples.

5. Copy figures or terms exactly. Arrange your work in an orderly manner.

6. Do your work by yourself. Think out the reasons for each step.

#### LATIN

1. Learn your daily vocabulary, fixing it in your memory by finding the English derivative wherever possible.

2. Read aloud at home daily your lesson in Latin for the sake of correct pronunciation.

3. Translate your Latin into correct English, noting idiomatic structures.

4. Memorize the various grammatical forms of type nouns and verbs.

5. Look up geographical locations and historical allusions and discriminate carefully between the various meanings of words.

6. Drill and drill again on the essentials.

#### FRENCH

1. Read aloud daily at home the French lesson for pronunciation.

2. Memorize daily your lesson vocabulary and frequently review the earlier vocabularies.

3. Speak and think in the language, explaining and summarizing the text in French.

4. Memorize by frequent use and repetition typical idioms in composition and conversation.

5. Translate your French into correct and forceful English.

6. Use Latin and English relationships in the identification of new words.

JAMES D. DILLINGHAM

## **News Items from the School of Education of the University of Chicago**

### **ANNUAL UNIVERSITY OF CHICAGO DINNER**

The University of Chicago dinner which occurs annually during the week of the meeting of the Department of Superintendence will be held at the Hotel Traymore, Atlantic City, Monday, February 28, at 6:00 P.M. Alumni, former students, and friends of the University are most cordially invited. Recent developments at the University, proposed alumni organizations and activities, and other matters of genuine interest will be discussed.

The arrangements made with the Hotel Traymore make it necessary to know considerably in advance the number who will attend. The committee finds it necessary, therefore, to request those who plan to attend the dinner to make reservations in advance. Will you please write at once to Dean William S. Gray, University of Chicago, for the number of tickets you want. The price is three dollars per plate. Tickets will be forwarded as soon as requests, with inclosures, are received.

### **COURSES IN AGRICULTURE IN HIGH SCHOOLS**

During the spring of 1920, Joseph Sudweeks, A.M., University of Chicago, made a detailed study of the courses in agriculture in the United States. The regular courses of twenty-nine states and the courses of forty-six states which fulfill the requirement of the Smith-Hughes Act were included. The following significant facts were revealed:

In 1918-19, there were 863 schools giving courses in vocational agriculture; and for the states which have reported the number of schools for 1919-20 there has been an increase of 72 per cent over the number reported for 1918-19. Calculating on the same basis for the remainder of the states, there were probably about 1,480 high schools giving courses in agriculture during 1919-20.

The standard requirements for agricultural instruction under the provisions of the national vocational education law are higher



than for instruction in the non-vocational schools. This applies to the school plant and equipment, funds for maintenance, courses of instruction, methods, and qualifications for teachers.

#### THE GEOGRAPHICAL DETERMINATION OF A SCHOOL UNIT

Everett LeRoy Walters, A.M., University of Chicago, 1920, recently completed a detailed study of the effect of distance on the organization of a school unit. Assuming a consolidation of the seventh and eighth grades as a basis for a new unit, Mr. Walters compared the proposed unit in (1) number of pupils and (2) distance from pupils' homes with the present 8-4 grade organization. Data were secured for three distinctly different sections of a large city (*a*) made up entirely of private homes, (*b*) comprised of foreign population of the laboring class, and (*c*) made up of apartment houses occupied by the middle working class.

The study of the distribution of the actual grade membership of the schools included in the investigation showed that Group A had a larger membership in the eighth grade than in the first grade, and was practically constant throughout, that Group B experienced a marked decrease from the first grade to the third, only a small decrease from the fourth grade to the sixth, and a second period of rapid elimination during the seventh and eighth grades, and that Group C had essentially the same grade distribution as Group A, although the economic and housing conditions were distinctly different. The detailed analysis of all the facts which were secured gave convincing evidence that the attendance which could be expected in junior high schools in each of these districts differed widely.

After determining the expected attendance in the seventh, eighth, and ninth grades of the schools in the three districts studied, the appropriate location of new school units was discussed in detail. In this connection the generally typical relations of distance and numbers were emphasized. Other factors which were considered are the character of neighboring districts, the presence of unsanitary or distracting industry, crowded thoroughfares, opportunity for spacious playgrounds, and convenience of transportation lines.



## STUDIES IN HIGH-SCHOOL PROCEDURE—DIRECT AND INDIRECT TEACHING

HENRY C. MORRISON  
University of Chicago

In the third Nemean Ode of Pindar occurs an obscure passage which the English commentator Bury translates as follows:

He whose knowledge is a lesson learned is a man in darkness, whose thought is as veering gale, and who never cometh to port with unerring course, but with ineffectual mind tasteth a thousand excellencies.

For so many generations have teachers relied upon the "lesson learned" as the normal and ordinary procedure that lesson-assigning and lesson-getting have come to be pretty nearly synonymous with teaching and education in general in the mind, not only of the teacher, but of the general public as well. To such an extent is this true that even such praiseworthy innovations as the supervised-study movement have often tended to break down because they have merely tended to substitute one form of lesson-getting for another. Too often at that the new form of lesson-getting costs in training more than it gains in efficient learning. The nub of the whole supervised-study proposal is in the possibility it affords of substituting direct for indirect learning. Failing to make such a substitution, it often turns out to be only a partial success.

The lesson-giving, getting, and hearing type of procedure is really based upon the assumption that learning a lesson is transferable to learning the thing the lesson stands for. If the pupil learns something about Latin and enough about it, the assumption is that he can eventually read the thought of the Latin page. If he learns about the law of falling bodies, he will understand their behavior. If he can master a dozen pages in economics and stand cross-examination thereon, he will understand and can successfully react to the principles therein set forth. Such is the assumption, and baldly stated few would subscribe to it in theory, whatever their practice.

Students of the teaching process have for many years felt the underlying pedagogic fallacy and embarked on various corrective expedients. Since the fallacy manifests itself most commonly in its product, which is inability to "apply knowledge," teachers have commonly tended to seek a corrective by changing the material of instruction, substituting applied science and mathematics for bodies of coherent principles, and in general developing an almost morbid liking for the commonplace and familiar as material. Indeed, in numerous instances attempts have been made to meet the difficulty by changing the whole theory of education, and schools have grown up which are in essence little more than children's clubs, ordinary informal education being substituted for systematic formal education. Such steps are in general praiseworthy and in the right direction, but they fail to reach the root of the matter—as I shall attempt to show. No change in material will of itself and alone mend the difficulty. The latter lies in the fallacy of the lesson-learning assumption, which the poet expresses in the lines quoted at the beginning of this article. No material can be mastered so as to be available in functional form on a lesson-learning type of procedure, the fact that the material is in itself functional to the contrary notwithstanding.

The best primary teaching of reading and the best modern language work in the secondary school have pointed the way out of the fundamental erroneous assumption. I should perhaps add to these instances good teaching procedure in many vocational schools and branches, and good teaching of music.

The teaching of reading started life as a lesson-learning proposition. That is to say, written discourse was analyzed, the elements learned, and children were expected to build up out of the elements ability to read the thought from the printed page. Ineffectiveness was felt, though its magnitude was not realized until the modern testing movement had revealed the extent to which even relatively mature pupils are unable to comprehend what they read. Reformers went zealously to work, and teaching technique was wonderfully improved, down to the latest phonic system; but always improvement was directed to improving the learning of the elements. Not until teachers of independent temper and in the

habit of thinking in terms of the learning process itself began to do direct teaching of thought-getting through the word-and-sentence method did economical and efficient teaching of reading come into existence. Pupils of the older methods could and do pronounce words with more or less remarkable facility, but their capacity to interpret the printed page was and is uncertain and uneconomical at best. If the pupils of the newer method learn anything at all, they learn thought-getting.

Similarly, modern language teaching was for generations based upon the learning of grammar and the assimilating of grammatical principles, upon the assumption that such learning would transfer to ability to read and speak the meaning of the foreign tongue. Such ability, when it appeared at all as an independent and useful capacity, as it seldom did, was acquired only with great labor and a ruinous expenditure of time. As in the case of reading, improvement devoted itself to technique, leaving the underlying conception of method in the old indirect form. Improvement in results was quantitative rather than qualitative, and the quantity did not amount to much. Only with the advent of consistent direct teaching, in the form of reaction to foreign language discourse, did the learning process become economically productive of early ability to read in the foreign tongue.

And so I might illustrate from the other two fields cited above, the vocational schools and the teaching of music. In every case learning is positive and effective in proportion as it is direct classroom work with no assignment of lessons, except assimilative material, and no intervention of inhibitory learning about the ability to be acquired. It is true that the ancient fallacy is still so deeply rooted in the mental processes of most progressive teachers that they cannot break entirely away and become entirely consistent, and their results suffer in proportion.

In the course of the last school year several sets of test material in Latin and French drawn from our laboratory were scrutinized in the endeavor to detect relations between attainment in sight reading, which is assumed to be the ultimate test of ability to react to the thought of the printed page, and attainment in a prepared lesson in translation.

TABLE I

SIGHT		PREPARED	
Pupil	Score	Pupil	Score
Latin I			
A.....	100	C.....	100
B.....	100	L.....	95
C.....	100	D.....	95
D.....	95	E.....	95
E.....	95	K.....	95
F.....	95	A.....	95
G.....	90	G.....	95
H.....	90	F.....	95
I.....	90	J.....	90
J.....	85	H.....	90
K.....	81	B.....	85
L.....	76	M.....	81
M.....	76	N.....	81
N.....	71	I.....	81
O.....	67	O.....	76
Latin II			
A.....	96	C.....	100
B.....	87	E.....	100
C.....	87	B.....	100
D.....	61	A.....	96
E.....	52	N.....	96
F.....	44	D.....	96
G.....	44	K.....	96
H.....	44	F.....	87
I.....	39	P.....	78
J.....	39	J.....	74
K.....	39	I.....	70
L.....	35	L.....	70
M.....	35	R.....	65
N.....	30	H.....	65
O.....	30	G.....	61
P.....	26	T.....	57
Q.....	22	Q.....	52
R.....	17	S.....	48
S.....	13	O.....	44
T.....	9	M.....	35

TABLE I—Continued

SIGHT		PREPARED	
Pupil	Score	Pupil	Score
Latin III			
A.....	59	H.....	91
B.....	59	D.....	91
C.....	54	C.....	82
D.....	50	N.....	82
E.....	45	O.....	82
F.....	40	A.....	76
G.....	41	P.....	76
H.....	36	F.....	72
I.....	36	J.....	72
J.....	32	L.....	68
K.....	32	B.....	63
L.....	32	M.....	50
M.....	27	G.....	50
N.....	27	E.....	50
O.....	27	I.....	36
P.....	14	K.....	32
Latin IV			
A.....	92	H.....	100
B.....	81	I.....	100
C.....	73	A.....	100
D.....	73	E.....	100
E.....	69	B.....	96
F.....	65	D.....	96
G.....	62	P.....	92
H.....	58	F.....	92
I.....	58	O.....	92
J.....	54	G.....	83
K.....	46	C.....	85
L.....	46	J.....	81
M.....	46	L.....	81
N.....	35	M.....	81
O.....	27	N.....	69
P.....	19	K.....	65

For this purpose, a passage was set for sight reading and the papers gathered. The same passage was then assigned for prepared work, and the translation written the following day. Both sets of papers were then scored for comprehension by dividing the passage into thought units and noting to how many of these

thought units each pupil had correctly reacted. No account was made of exact grammatical rendering, provided the pupil had evidently reacted correctly to the thought intended to be conveyed. The method is, of course, available only for a comparative study in which the personal equation of the scorer is the same on both the sight and the prepared passage. For purposes of determining the actual attainment of the class and the individual pupils, the method is useful only for rough approximation. Table I exhibits the results in Latin. A section from each of the four classes was chosen at random. Pupils are arranged in order of attainment.

#### DISCUSSION OF LATIN EXHIBIT

In every case the material selected for study and testing was a passage chosen from the Latin being read, but, of course, in every instance an unfamiliar passage: in Latin I, sentences similar to the material of the beginner's book; in Latin II, *B.G.* iv. 6; in Latin III, *In Cat.* iii. 17; in Latin IV, *Aeneid* v. 719-31. The test was run in January. School opens about October 1.

The transfer from lesson-learning to capacity to read Latin is much higher in Latin I than elsewhere. In three cases here the pupil reads at sight better than he prepares the same material. This may be due to any of several causes, but one of the causes may be that the pupils have not yet acquired the lesson-learning habit in this subject, and the process of preparation contains inhibitory elements operating on their power to react, which has predominantly been directly acquired. In four cases, power as measured by the test is exactly the same as the achievement in the same work subsequently prepared. There are four other similar cases in the other sections, and several in which pupils read at sight substantially as well as they prepare the same work. There is an ambiguity here as to causes at work. It may mean that these eight pupils and the three first mentioned, eleven out of a total of sixty-seven, are direct learners in spite of the modified lesson-learning method which prevails; or it may mean that eight are cases in which lesson-learning clearly transfers to translation power. Specific psychological study of the cases would be required to settle the point in question.

The clearest type of revelation in this Latin series, however, is to be found by comparing the order of standing of pupils in the sight test with the corresponding order after the lesson has been prepared.

Now, if the pupil's acquired power to react to the meaning of the Latin has been gained through his daily preparation of translation, there should be a close correspondence between the order in which pupils stand after the lesson has been prepared and the order in which they stand on the sight test. That is to say, the best pupil on the prepared lesson should be the best pupil on the sight test and so on in pretty close order through the series. We should hardly expect the sight test to range so high as the test after preparation in any case, and in fact it does not. As a matter of fact, the departure from this expectation is in all four cases rather striking.

The Latin I group divides evenly into quintiles of three each. Comparing the two first quintiles, we find one pupil common; comparing the second, one; the third, one; the fourth, none, and the fifth, two. Pupil L, who is twelfth on sight reading, is second on the prepared list. Number 11 on sight is No. 5 on prepared. Pupils A and B reverse this tendency and appear lower on prepared than on sight. Not only is there little correspondence in order, but something over 25 per cent of the instances are markedly displaced in the comparison of columns.

Latin II is similarly divisible into quintiles. In the first quintiles, A, B, and C are common; in the second, there is one common case; in the third, three; in the fourth, none; in the fifth, two. Not a high correlation here, but somewhat better than in Latin I. Two pupils, N and R, are notably displaced; and five, D, H, G, M, and O, are relatively better on sight work than on prepared. It is noteworthy that this section had done distinctly more consistent direct learning than any other.

Latin III is divisible into quartiles. In the first quartiles, two are common; in the second, one; in the third, two; in the fourth, none. H and N are notably displaced upward in the prepared lesson; and A, B, G, and E, downward.



TABLE II

PUPIL	SIGHT	PUPIL	PREPARED
French I			
1.....	100	1.....	100
2.....	100	3.....	100
3.....	100	4.....	100
4.....	100	5.....	100
5.....	96	6.....	100
6.....	96	7.....	100
7.....	96	8.....	100
8.....	96	9.....	100
9.....	96	10.....	100
10.....	96	12.....	100
11.....	96	15.....	100
12.....	96	17.....	100
13.....	93	20.....	100
14.....	93	21.....	100
15.....	93	22.....	100
16.....	93	25.....	100
17.....	93	26.....	100
18.....	93	28.....	100
19.....	89	29.....	100
20.....	89	32.....	100
21.....	86	33.....	100
22.....	86	34.....	100
23.....	82	35.....	100
24.....	82	2.....	96
25.....	79	11.....	96
26.....	75	13.....	96
27.....	71	14.....	96
28.....	71	16.....	96
29.....	71	18.....	96
30.....	68	24.....	96
31.....	68	31.....	96
32.....	61	38.....	96
33.....	54	39.....	96
34.....	50	23.....	93
35.....	50	27.....	93
36.....	50	30.....	89
37.....	46	19.....	86
38.....	46	36.....	86
39.....	36	37.....	86



TABLE II—*Continued*

PUPIL	SIGHT	PUPIL	SEMESTER GRADES
French II			
1.....	100	1.....	100
2.....	97	8.....	97
3.....	97	20.....	97
4.....	90	5.....	90
5.....	90	3.....	90
6.....	90	16.....	90
7.....	90	18.....	90
8.....	83	12.....	83
9.....	79	2.....	79
10.....	76	11.....	76
11.....	76	17.....	76
12.....	72	9.....	72
13.....	69	6.....	69
14.....	69	13.....	69
15.....	69	15.....	69
16.....	66	10.....	69
17.....	66	19.....	66
18.....	66	4.....	66
19.....	62	7.....	66
20.....	48	14.....	62

Latin IV is also divisible into quartiles. In the first quartiles, there is one case common; in the second, one; in the third, one; in the fourth, two. Pupils H, I, P are displaced upward; and G and C downward.

To sum up the evidence from the Latin, the array is nowhere what would be the case if prepared lesson-learning were directly transferable to the corresponding capacity; and in 25 per cent of the cases the lack of correspondence in individual pupils is striking. Let us turn to the French exhibit and ascertain whether or not a similar state of affairs is revealed there.

Unfortunately, the purpose for which the French material was originally secured did not involve the same kind of comparative study between sight and the same passage prepared as was possible in the case of Latin. However, we have the same kind of study available for French I and a comparison between sight capacity and semester grades in a French II division. In the case of the

latter we have much the same sort of data as in the case of Latin, but data which exhibit the same situation from another viewpoint.

#### DISCUSSION OF FRENCH EXHIBIT

French I was a division which was taught by approximately direct methods. The method used was direct in the current modern-language sense of the term, that is to say, the approach was directly to the reading of the language without preliminary introduction by way of a study of grammatical principles. Such principles were learned through their functional use in reading and in reacting to spoken French. There was constant use of the assigned lesson, however, in the form of exercises. There was not in use a technique which constantly proposed to itself the question, Is this pupil learning to react to written and spoken French discourse? And, if not, why not? The course was set, exercises were given, class technique was very efficient up to the point suggested by the question. Beyond that, here as elsewhere, pupils learned or they did not—learned well or ill, depending upon their language ability, interest, devotion to study, ambition, and the various other conditions of individual relation to school and class work. As will be seen, half the class did very well indeed, bearing in mind that this was a January sight-reading test for pupils beginning in October.

Under these conditions, there is a much clearer correlation than in the case of Latin. In most of the cases, pupils do very well indeed at sight and, upon being given a chance to read over and prepare the material, correct their faults and turn in perfect or nearly perfect papers. There are, however, several conspicuous cases in which learning is evidently of the lesson-learning type. Pupils 21, 22, 25, 26, 28, 29, 32, 33, 34, 35 show results varying all the way from fair capacity to very inferior capacity on the test, but all were able to produce perfect papers as soon as they had an opportunity to get into the lesson-learning attitude. The same thing is true to a lesser degree of several others. Pupils 33, 34, 35, 38, and 39 are the most notable instances. There are a few instances in which pupils are displaced downward as in the case of Latin, but in no case beyond a slight degree, readily account-

able as instances of insignificant errors. So far, we have the normal outcome of direct learning, and the unfavorable results are assignable to the principle that the assigned lesson still held considerable sway in the method used, and to the further principle that individuals were not tested from time to time and retaught to the point of mastery.

Turning to French II, we have quite a different situation. Here, the semester grades are compared with the results of the sight test. Now, the semester grades are very largely a representation of the performance of individuals on a large number of assignments, of the fidelity with which pupils have discharged a duty assigned by the teacher. If, now, learning a lesson is readily transferable to learning to read French, the order of pupils in the semester-grade column should be very closely what it is in the sight-reading column. Such is not the case. Dividing the group into quintiles, we find in the first quintiles, sight and semester grade, one pupil common; in the second, none; in the third, two; in the fourth, two; in the fifth, one. Pupil 20 achieves a mark of 97 on semester grade and rates as a high honor pupil: but he is at the foot of the group on an easy test of capacity. Pupil 4, at the end of the semester, comes under admonition, and yet on a test of capacity there are but three better pupils in the group. Of the twenty pupils considered, six only do consistently well on both semester grades and capacity test.

We have no similar comparisons for the sciences and mathematics. Such comparisons are not so easily made, but they can be made without serious difficulty. It is a matter of comparing results in lesson-learning with the results of tests of capacity where the presumptions of lesson-learning have been removed. Some of my readers may be interested to carry out such a study.

So far as this study throws light, it seems to be fairly clear that in the case of this typical round of teaching in two high-school subjects under the best of conditions the transfer from lesson-learning to capacity is very uncertain and that it occurs in the cases of a small percentage of pupils. What we really succeed in doing is the training of capacity to get lessons, and some pupils become very adept in the process of lesson-learning. The result

leads us far from the use of the school as an institution for the development of genuine intellectual capacity. I am far from asserting that a similar scrutiny of all our secondary and collegiate schools and subjects would lead to the same conclusions, and I am equally far from asserting that it would not. If it is only in part true, the loss to society in what our teaching might have accomplished and has not and does not is not pleasant to contemplate.

This article is evidently a piece of destructive criticism. In another article, to appear later in the *School Review*, I hope to make some useful suggestions bearing on the way out.

## THE STATUS OF VOCATIONAL GUIDANCE IN MASSACHUSETTS, APRIL, 1919<sup>1</sup>

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This study represents an investigation into the status of vocational guidance in the public schools of Massachusetts in the spring of 1919. Massachusetts was selected because it is the state in which the vocational-guidance movement began and in which it has farthest advanced. It was in Boston, in 1908, that Frank Parsons inaugurated organized vocational guidance, a service which has since been fostered by a number of philanthropic individuals and by a greater number of self-sacrificing teachers.

Caution must, of course, be exercised in accepting all the details herewith presented as they are the results of a questionnaire. In all probability the "paper" plans are not yet being followed in all places as thoroughly as the superintendents might wish them to be. On the other hand, since this study was concluded, the advance of vocational guidance in Newton and other Massachusetts towns is very pronounced.

No reference is made in the article to vocational guidance in higher institutions, to the Bureau of Vocational Guidance of the Graduate School of Education of Harvard University, to the courses in this subject conducted at Boston University, nor to the activities of the Women's Educational and Industrial Union in counseling college women. The subject has been restricted to public-school systems.

In 1909, immediately after Frank Parsons took up his work, the Vocation Bureau began a movement for training Boston teachers in vocational guidance. Also in 1909 placement work was inaugurated. The latter was the first to be admitted as a

<sup>1</sup> The writer is greatly indebted to Professor Paul H. Hanus and Mr. Frederick J. Allen, both of the Graduate School of Education of Harvard University, for assistance and counsel in this study.

recognized part of the Boston school system, and the Department of Vocational Guidance of the Boston school system now has the triple duty of vocational counseling, of placement, and of the issuance of employment certificates to working children. The administration of vocational guidance in Boston includes both a centralization of the work for the grade schools and local autonomy in the high schools. The trade and vocational schools have developed guidance to a particularly encouraging extent.

#### RESULTS OF THE INQUIRY

The results of this study, showing the present status of vocational guidance in the public schools of Massachusetts, are presented in the accompanying chart.<sup>1</sup> In amplification of the chart certain matters are discussed as follows:

#### LOCAL SURVEYS

The first question, inquiring about the local surveys that have been made, was asked with the purpose of giving a background showing the accumulated scientific information which is now available for the purposes of vocational guidance. Unfortunately, some of the cities, for example, Waltham, failed to mention surveys which the writer knows to have been made. Probably because vocational guidance was not the actuating reason for these surveys, it was thought that they would not be considered relevant to the present inquiry. More surveys have been made than the chart indicates.

#### INSTRUCTION REGARDING VOCATIONS

It is quite natural that informal phases of instruction regarding vocations should be more widely in practice than formal class instruction. Individual counsel is given almost everywhere in the state in a more or less systematic manner. Yet the extent to which even the more definitely organized class work is found is

<sup>1</sup> In addition to the responses listed in the chart, the following school systems stated that they do not give vocational guidance: Pittsfield, Newburyport, Westfield, Weymouth, Plymouth, Norwood, Andover, North Andover, Westborough, Walpole, Dartmouth, Dalton, Lancaster, Lincoln, Superintendency Union Number 46 comprising the towns of Kingston, Pembroke, Halifax, and Plympton, Superintendency Union Number 64 comprising the towns of Merrimac, West Newbury, Salisbury, and Newbury.

surprising and most encouraging. Vocations are given class attention either in especially organized classes for guidance or as a correlated topic in other classes in twenty-four of the seventy communities that responded. Six of these twenty-four communities carry the work beyond the classroom and have outside field work or investigations of occupations by the pupils.

Lectures and counsel are given in the sixth, seventh, and eighth grades of a number of the Boston schools with reference to the choice of different high-school courses or of different occupations. Marblehead reports instruction given on vocations in the high school: "This work is required the first half-year of all Freshmen in high school. The study centers chiefly around the qualifications demanded by each vocation." The Gloucester schools use Davis's *Vocational and Moral Guidance* as a text in the ninth grade, followed in the high school by Sandwick's *How to Study and What to Study*, which includes a portion devoted to vocations. In New Bedford, vocations are taught in the class in commercial geography. In Framingham, a class in local industries is conducted as a part of community civics. A vocational reader has proved very popular in the seventh grade at Athol. In Williamstown, the superintendent speaks several times each year to the pupils of the high school and holds regular individual conferences with the Seniors. Weston and Groton make use of themes in the regular English class to direct attention to vocations and to the personal characteristics of the children.

To summarize this topic, it may be noted that vocational guidance is entering the school curriculum in a variety of different ways: as extra-class instruction given to pupils in the form of advice; as regular class work; and as a subordinate topic in other classes, for example, in English themes, in community civics, and in commercial geography. The work is being initiated in some cases by the school authorities, in others by outside individuals or organizations, or by the collaboration of the two. May not this very diversity of form be taken as an indication of the spontaneity of the movement, a proof that it is filling a real need, a promise that vocational guidance is to be a permanent and valued element of the school curriculum in Massachusetts?



I. SCHOOL SURVEY SHOWING OPTIMALLY (If positive responses listed on separate page)	II. LOCAL SURVEY			III. INSTRUCTION REGARDING VOCATIONS					IV. ANALYSIS OF INDIVIDUALS' APTITUDES			V. DIFFERENT GUIDANCE FOR CHILDREN LEAVING SCHOOL AT DIFFERENT GRADES			VI. CHILD'S CHOICE OF VOCATION		
	(A) INDUSTRIAL SURVEY	(B) COMMERCIAL SURVEY	(C) SOCIAL SURVEY	(A) CLASSES INVITED TO VOCATIONS	(B) STRENGTH IN OTHER CLASSES	(C) INDIVIDUALS	(D) OUTSIDE FIELD WORK IN VOCALS	(E) COOPERATION FROM OUTSIDE INDUSTRIES	(A) SCHOOL CLASSES	(B) - OF ATTITUDE, SOCIAL, ETC.	(C) PSYCHOLOGICAL TESTS	(A) 15 EIGHT GRADE	(B) FROM HIGH SCHOOL	(C) TO COLLEGE AND UNIVERSITY	(A) IF WHAT HAVE BEEN ENCOURAGED TO MAKE CHOICE	(B) ENCOURAGED TO WHEN JUDGED	(C) FACILITIES OFFERED FOR SUCH CHOICE
CITIES:																	
1. BOSTON	Yes	Yes	Yes	Yes	Yes	Yes	Part	Yes	Yes	Yes	Def	Yes	Yes	Yes	2	Yes	Yes
2. WORCESTER	No	No	No	No	No	No	No	No	No	No	Def	No	No	No	1.50	No	No
3. NEW BEDFORD	No	No	No	Yes	Geog	Yes	No	Yes	No	No	Ind	Ind	Ind	Ind	0	Yes	Yes
4. CAMBRIDGE	No	No	No	Yes	No	Yes	No	Yes	No	No	No	Yes	Yes	No	0	Yes	Yes
5. LYNN	No	No	No	Gr	N.D.	Yes	Yes	No	Yes	Yes	Def	Yes	Yes	Yes	7 & 8	Yes	Yes
6. BENSLEY	—	1919	—	No	N.D.	Yes	No	N.D.	Yes	No	Def	No	No	No	No	Yes	Yes
7. HOLYOKE	1916	—	—	No	No	No	No	No	Gen	No	Def	No	No	No	N.D.	No	No
8. HARTFORD	—	1918	1918	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	0	Yes	No
9. CHICAGO	—	N.D.	—	No	Yes	No	No	No	N.D.	No	Def	No	Part	Yes	0	Yes	Yes
10. PITTSBURGH	Yes	—	—	—	—	—	—	—	—	—	—	—	—	—	1.50	Yes	Yes
11. SPENCER	—	—	—	Yes	Yes	Yes	Yes	Yes	—	—	—	—	—	—	8	Yes	Yes
12. SALON	—	—	—	Yes	Yes	Yes	Yes	Yes	—	—	—	—	—	—	8	Yes	Yes
13. WALTHAM	—	—	—	Yes	Yes	Yes	Yes	Yes	—	—	—	—	—	—	8	Yes	Yes
14. CHICAGO	No	No	No	—	—	—	—	—	—	—	—	—	—	—	1.50	N.D.	Yes
15. GLOUCESTER	—	Yes	1913	Yes	Yes	Yes	Yes	Yes	Yes	No	—	No	—	—	8	Yes	Yes
16. NEWFELLY	—	—	—	No	No	No	No	No	No	No	—	No	—	—	8	Yes	Yes
17. NORTHAMPTON	—	—	—	Gr	Yes	No	No	No	No	No	Def	No	Yes	Yes	8	Yes	Yes
18. LEWISBURG	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	1.50	N.D.	Yes
19. MALLINGHAM	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOWNS OF 5000 AND OVER:																	
1. PRINCETON	—	1916	—	Civics	Yes	Visit	—	—	Yes	No	No	No	No	No	—	No	—
2. ASHLINGTON	—	—	—	Put	Part	Yes	No	No	Yes	Yes	Def	No	No	No	—	No	—
3. ADAMS	No	No	No	No	No	No	No	No	No	No	—	No	No	No	—	No	—
4. CLINTON	No	No	No	No	No	No	No	No	No	No	—	No	No	No	—	No	—
5. WAKEFIELD	No	No	No	No	No	No	No	No	No	No	—	No	No	No	—	No	—
6. GREENFIELD	No	No	No	No	No	No	No	No	No	No	No	Put	No	No	—	No	—
7. BATTLE	No	No	No	No	No	No	No	No	No	No	No	No	No	No	—	No	—
8. WINCHESTER	No	No	No	Com	Part	Yes	Yes	Yes	Yes	Yes	Def	No	No	Ind	1.50	Yes	Yes
9. ATTEL	No	No	No	Com	Part	Yes	Yes	Yes	No	No	Def	Yes	Yes	Yes	N.D.	Yes	Yes
10. PALMER	No	No	No	No	No	No	No	No	No	No	—	Yes	Yes	Yes	—	No	—
11. NO. ATTLEBORO	No	No	No	No	No	Com	No	No	No	No	Expos	No	No	No	—	No	—
12. RAINTREE	No	No	No	No	No	No	No	No	No	No	No	No	No	No	—	No	—
13. NORTHBRIDGE	No	No	No	No	No	No	No	No	No	No	No	No	No	No	—	No	—
14. MILTON	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	0	Yes	Yes
15. HANDEDHEAD	No	No	No	1.50	Yes	Yes	Yes	Yes	No	No	No	No	No	No	1.50	Yes	Yes
16. MITCHELL	—	—	—	Civics	—	—	—	—	Yes	Yes	—	No	Yes	Yes	Agold	Yes	Yes
17. WEAVERPORT	—	—	—	No	No	No	No	No	No	No	—	Yes	Yes	Yes	—	Yes	Yes
18. ROCKLAND	No	No	No	No	Yes	Yes	Part	Yes	No	No	No	No	No	No	2.50	Yes	Yes
19. BRISTOL	No	No	No	No	Yes	Yes	Part	Yes	No	No	No	No	No	No	0	Yes	Part
20. GORHAM	—	—	—	No	Yes	Yes	Part	Yes	No	No	No	No	No	No	—	—	—
21. GRABER	N.D.	—	—	No	No	No	No	No	No	No	—	No	No	No	1.50	Yes	Yes
22. CHILMARK	No	No	No	No	Yes	Com	Yes	Yes	N.D.	—	—	N.D.	—	—	not stressed	—	—
TOWNS OF LESS THAN 5000:																	
1. BARNSTABLE	—	No	—	No	Part	Yes	No	No	No	No	No	No	No	No	2.50	Yes	Yes
2. ROCKPORT	No (rural)	—	—	Yes	Yes	Yes	Yes	Yes	No	No	N.D.	No	No	No	—	No	—
3. WILLIAMSTOWN	—	—	—	No	Yes	No	No	No	No	No	—	No	No	No	0	Yes	Yes
4. CORASET	—	—	—	No	Yes	No	No	No	No	No	—	No	No	No	1.50	N.D.	No
5. BRANSON	—	—	—	No	Yes	No	No	No	No	No	—	No	No	No	—	No	—
6. WESTON	No	No	No	Yes	Yes	Yes	No	No	Gen	Yes	No	N.D.	—	—	—	Yes	Yes
7. GROTON	No	No	No	No	N.D.	Yes	Com	Some	Gen	N.D.	No	No	No	No	1.50	Yes	Yes
8. STOCKBRIDGE	No	No	No	No	N.D.	Yes	Com	Some	Gen	N.D.	No	No	No	No	—	—	—
SUPERINTENDENCY UNIONS:																	
UNION No. 29	—	1919	—	No	No	Part	No	No	No	Part	Def	No	No	No	1.50	Yes	Yes
UNION No. 79	No	No	No	No	No	No	No	No	No	No	No	No	No	No	—	No	—
UNION No. 67	No	No	No	No	No	N.D.	No	No	No	No	No	No	No	No	—	No	—
UNION No. 72	—	—	—	No	No	Com	No	Yes	No	No	—	No	No	No	—	N.D.	—

The Superintendency Unions comprise the following towns:

No. 29:  
Fairhaven  
Acushnet  
Mattapoisett

No. 67:  
Ayer  
West Boylston  
Shirley  
Boylston

No. 59:  
Conway  
Deerfield  
Sunderland  
Whately

No. 72:  
Clarksburg  
Savoy  
Florida  
Monroe



## VOCATIONAL COUNSELORS AND INSTRUCTORS

From the returns, it appears that the chief burden of vocational guidance rests upon the regular teachers without allowance of either time or money for the extra work. In Athol, however, in Williamstown, and in Superintendency Union Number 72, which comprises the towns of Clarksburg, Savoy, Florida, and Monroe, the work is being done in large measure by the superintendent in person. It is, of course, difficult to find teachers competent to serve as counselors and still more difficult to find professionally trained and experienced supervisors. Several responses showed that the communities definitely feel this problem. Particularly pertinent is the response from Newton, "Regular teachers have so little contact with actual business that they are not fitted to do this work. Special supervisors competent to give this instruction do not exist." Since making this statement the superintendent of Newton has called in outside experts to instruct his teachers in vocational guidance, and now regular instruction is given in the seventh and eighth grades, and vocational implications are being stressed in certain studies from the fourth grade into the high school.

In Boston, there are two grades of counselors: the first, called vocational assistants, and the second, vocational counselors. The assistants, appointed by the School Committee on the basis of competitive examination, serve in high schools or special schools, either on a part-time or a full-time basis. The counselors are designated from the regular staff by their respective headmasters. In some cases they are allowed a few hours a week for the work. No extra salary is given them. Both are under the supervision of the Department of Vocational Guidance. Provision is made for raising the professional level of these counselors and assistants by a series of meetings during the spring in which the changes taking place in the school system are explained, the national movement for vocational guidance is set forth and interpreted, and a number of the counselors address the body on methods and devices used in the work in various parts of the city.

## EDUCATIONAL GUIDANCE

Of the entire field of vocational supervision, educational guidance is the most firmly established. It is and always has been

the schoolman's prerogative to advise young people regarding their present and future education. For example, in Somerville, the schools are on the 6-3-3 basis, elementary school, junior high school, and senior high school. Class lectures and individual counsel are regularly given before each transition, in which the children are told what they may find at the new school. In Newton, two pamphlets have been published by the school department, one outlining the several high-school courses for the benefit of the children about to finish the lower grades, and the second analyzing the entrance requirements of various colleges and universities to which Newton ordinarily sends its graduates. In Boston, several such pamphlets may be found.

#### CONCLUSION

In conclusion, it must again be emphasized that the information contained in this article is neither complete nor final, inasmuch as all the communities are not represented, and the data received have not all been checked by personal visit and established as correct. However, the seventy school systems that did respond, well distributed through the list of Massachusetts cities and towns, constitute a thoroughly representative group. The testimony received from the correspondents, though subject to certain minor doubts and reservations, is in general clear. Apart from such details, the results are accurate.

The general interest manifested in vocational guidance throughout the state; the determined efforts of educators to establish it on a firm financial footing, particularly the campaign of Boston before the legislature for a tax to be devoted to this end; the steady efforts of the Bureau of Vocational Guidance of Harvard University, of Boston University, of the Women's Educational and Industrial Union, and of the superintendents of schools of Boston, of Newton, and of other cities, to develop a profession of counselors—all of these constitute a sound basis for a praiseworthy, steady, sanely controlled expansion of vocational guidance in Massachusetts to a position of continually greater service.

## THE TEACHING OF MATHEMATICS IN THE JUNIOR HIGH SCHOOL

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The report of the National Committee on Mathematical Requirements<sup>1</sup> raises a number of interesting questions in view of the particular characteristics of pupils of the seventh, eighth, and ninth grades.

The success of the rapidly spreading junior high school depends upon the development of courses and methods which conform with the demands of early adolescence and which provide the type of work best adapted to the needs and abilities of a special type of pupils who because of their maturity are above the elementary types of instruction but are not yet ready for high-school work. For this reason the characteristics of this period of child-life and the aims and purposes of instruction require careful study. To one who has made such a study the special needs become readily apparent.

The formulation of a new course of study to meet these needs after they have been recognized is in many respects a much easier administrative problem than any problem of curriculum construction now confronting the school. Especially is it easier than the problem of reconstructing the courses of the senior high school where progress is retarded because of the powerful influence of tradition. It is not even necessary to think of the junior high school as a new and separate institution. The cost of new buildings and equipment may be prohibitive in many localities and may make a separate institution impossible. What is really needed is a reorganization of the subject-matter of the three grades following the sixth, the construction of additional material, and the elimination of that which should either be dropped or post-

<sup>1</sup>"Junior High School Mathematics." *Secondary School Circular No. 6*, July, 1920. Washington: Department of the Interior. Pp. 10.

poned to a later period. It is true that the junior high school program is essentially one of curriculum reconstruction, whether the work is carried on in an elementary school or in a high school. In either case, a recognition of pupils of this age as requiring special types of instruction is not only desirable but necessary. Junior high school pupils need a treatment different from that suitable for the children of the first six grades, and they are too young to associate with the older pupils of the high school.

In mathematics, pupils are supposed to have acquired mastery of the fundamental operations with whole numbers and with common and decimal fractions to such an extent that they are able to perform these operations with a fair degree of accuracy and rapidity. However, we cannot merely continue the arithmetic of the seventh and eighth grades, to be followed by the traditional algebra of the first year of the senior high school, or by demonstrative geometry. The traditional courses in algebra and geometry have been worked out for pupils several years older than junior high school children, and even for them these courses have been open to severe criticism. Any attempt to bring these courses in high-school mathematics without modification into the lower grades is doomed to failure. A modern course cannot be made up on the basis of tradition, conjecture, or opinion alone; material included must be defensible on the basis of definite principles, and must be organized with reference to the real needs in the life and studies of the children.

The attitude of the National Committee on Mathematical Requirements as to selection and arrangement of material can be observed in five plans intended to be suggestive to teachers "in deciding upon a course suited to their needs." As far as the work of the seventh grade is concerned, all five plans put emphasis (1) on a variety of applications of arithmetic of the type that relates to the home, to industry, to thrift, and to various school subjects; and (2) on intuitive geometry; two of the plans emphasize algebra, presumably consisting of simple formulas. In the fifth plan the Committee gives intuitive geometry the first place.

The fact cannot be overemphasized that space is both the most available and the most concrete material. A need of some



knowledge of space relations enters into everybody's life. Hence geometry, because of its usefulness and concreteness, might be made the core of the first-year course. Its purpose should be to make the pupil familiar with the common geometric forms in nature, in buildings, and in his surroundings. It should be intuitional and constructive, but not demonstrative. It should train the hand in measuring and in the use of the simple drawing instruments. It should include the fundamental geometric constructions and a considerable amount of drawing of designs and drawing to scale.

Furthermore, the applications of arithmetic which are needed to give review and drill in the operations taught in the lower grades should relate mainly to geometry because they are then within the experience of the pupils and can be understood and studied with profit.

On the other hand, most of the other applications are remote from the pupil's experience and are therefore not understood. Hence, the time spent on teaching them is not profitably employed, especially as far as training in arithmetic is concerned. The ordinary business man prefers a pupil who is thoroughly trained in the fundamentals of arithmetic and who understands the meaning of interest, percentage, and discount, to one who has studied all the applications but is not grounded in the fundamentals.

Problems in percentage, discount, and in mensuration of lines, surfaces, and solids, formulas and graphs, are met frequently in daily work and should therefore receive considerable attention. Indeed, by eliminating many of the applications for which there is no real need, time is gained to extend the pupil's experience over the whole field of secondary mathematics and to develop a high degree of skill necessary to perform the operation accurately. Space material is the most excellent material with which to accomplish these results.

So far the argument against most of the applications of arithmetic has been that they do not really enter into the life of the pupil. It is often maintained that their usefulness is so great in the later life of the pupil that they should not be dropped so readily. As a matter of fact, the variety of problems which do



arise in the ordinary affairs of daily life and which call for the use of arithmetic is not as great as is generally supposed. Recent studies tend to show that many of the topics now taught in traditional courses of seventh- and eighth-grade arithmetic might be omitted without loss to the learner, especially since they are non-essential for future use. For example, there is very little use in common practice for the solution of problems in stocks, bonds, partial payments, insurance, bank discounts, and compound interest; all of these are remote from the experiences of the pupils. Even when these problems actually arise in a bank, it is more advantageous to do computations by means of special tables and devices. It is therefore better to place the emphasis on the few really important and useful phases of arithmetic and to postpone these other applications to a later stage. Special courses may be offered to satisfy special needs, as might be the case in commercial and industrial communities in which a sufficiently large number of pupils expect to take up commercial and industrial work. Surely, there is no justification for a whole year's course in arithmetic as the first year's work in the junior high school.

If we eliminate most of the traditional seventh-grade arithmetic, the next problem which confronts us is to replace it by more suitable material. The fact has been pointed out that the main emphasis is to be placed on geometry. Moreover, practice in English and continental schools has shown that children of junior high school age can master much of the work which is now taught in the senior high school.

Recent textbooks on junior high school mathematics all show that a considerable amount of algebra, intuitive geometry, and arithmetic is now commonly included in junior high school mathematics. The report of the National Committee on Mathematical Requirements also expresses the view that arithmetic, intuitive geometry, algebra, numerical trigonometry, and demonstrative geometry form a suitable course. There is, however, difference of opinion regarding the arrangement of these subjects. As a rule, the material is divided into large topics, artificially separated from each other, frequently in such a way that none has any particular relation to the subsequent topic. Thus, geometry

sometimes follows the study of arithmetic; for example, measurement of lines is taken up after a chapter on interest.

There seems to be a feeling that mastery can be attained only by studying a single large topic for a considerable length of time. This is contrary to actual teaching experience. Lasting understanding comes with wide experience in a large number of situations, while material learned by drill and by intensive study alone of a single topic is likely to be retained only temporarily and does not transfer. We have very good evidence of this in the traditional division of senior high school mathematics, where algebra is studied for a year, then dropped, and taken up again in the third year. Invariably a review is necessary before the new work of the third-year course can be studied profitably. Most textbooks recognize the need for this review by beginning the advanced course with a summary of the first-year course. If algebra were used in connection with the second-year course, such reviews would not be necessary.

Another illustration is the well-known fact that pupils cannot apply their mathematics when needed in a different subject, as, for example, in physics even when they have done excellent work in mathematics.

The difficulty is not removed by teaching these large topics in parallel courses. It is more likely to be increased. The pupil finds himself abruptly carried from one experience into another distinctly remote from the former, with the result that he becomes confused and attains no mastery of any topic. The mathematics of the future junior high school is to be of the correlated type, which is more and more replacing traditional courses in the senior high school and even in the junior college. By giving wide experiences with work which pupils understand and which appeals to their interest, a familiarity is secured with the use of the mathematics likely to be functional in the solution of real problems. To master material which he can understand and therefore can learn has the effect of making the pupil feel and value the power of his mind.

What is needed is a complete outline of a course in which the various subjects are correlated whenever one supplements the other. Arithmetic is to be reviewed through the constant use, not by having

formal drill only. Algebra is to come in as a means of stating geometric facts and principles wherever it is needed and useful, but a scientific treatment is not to be attempted at this stage. Since the ordinary teacher is too busy to make this correlation it is the duty of those who are working on courses of study to exert their efforts mainly in this direction. Separate outlines of topics in arithmetic, algebra, or geometry, contribute but little to the solution of the problem.

The following outline indicates what was done last year toward solving this problem in one of the experimental classes of the junior high school at the University of Chicago. In view of the fact that intuitional geometry furnishes the most concrete material, it is made the means of unifying the work of this grade. Free use is made of arithmetical or algebraic material wherever it is helpful or needed, if the pupil is able to comprehend it. Occasionally, a supplementary topic is studied intensively, to the exclusion of all others, to attain mastery, as learning to solve equations of a certain type or some arithmetical operations like square roots or abbreviated multiplication. In every case only as much of a supplementary topic is studied as is needed to help the pupil to go forward with the work of the main topic.

The course is planned to have a psychological arrangement, teaching the simplest things first. Line-segments, angles, perimeters, and linear functions precede areas and quadratic functions; these in turn are followed by the study of volumes and functions of degree higher than the second.

#### OUTLINE OF THE SEVENTH-GRADE COURSE

##### I. LINE-SEGMENTS. LINEAR FUNCTIONS OF ONE VARIABLE

a) *General concepts.*—Geometric lines are met in the form of boundaries in maps, drawings, polygons, and solids. The intersections of lines are points. Points are denoted by capital letters and lines by two capital letters representing points.

b) *Measurement.*—The pupil learns to measure segments found in objects in the classroom, in scale drawings, and in graphs. He becomes acquainted with, and learns to use, the instruments for measuring, the inch ruler, the centimeter ruler, the compass,

and squared paper. He studies the metric system. He sees that measurement is approximate to a certain degree of accuracy and that the degree of precision is expressed by the number of significant figures. In measuring perimeters he needs and uses the operations with common and decimal fractions, and considerable drill in these operations is given. The names of polygons are learned, and they are classified as to sides. Various notations for numbers are given. Letters are used to denote the number of units in line-segments which have not actually been measured, leading to the idea of literal number. Some of the simplest symbols are introduced, as,  $=$ ,  $>$ ,  $<$ .

c) *Drawing*.—Facts and relations between different facts are represented in various forms, by means of tables, as temperature, train times, interest; by line or bar graphs, as statistical data; by means of an algebraic formula, as uniform motion and percentage. Some of these are represented in all three ways. The algebraic representation leads to equations, as  $d = 20t$ ,  $p = 4x$ , and to the evaluation of expression of the form  $ax$ , where  $a$  is a numerical coefficient.

Many other problems, not of geometric content, are solved by means of equations of this type and are here studied, including percentage and interest problems. In this manner the pupils solve these equations in a number of different situations. No attempt is made to include equations of forms other than  $ax = b$ .

Scale drawings in considerable number give the pupil practice in handling instruments and include reviews of the preceding arithmetical operations. The drawing of designs aims to develop appreciation of geometrical forms.

d) *Habits of study*.—Throughout the study of any topic the main emphasis is placed on neatness, drill, and accuracy. Pupils at this age have a tendency to hurry, to be inaccurate. They must learn that speed without accuracy is not sufficient. To train neatness, the formal arrangement of all written work is illustrated by many typical examples completely worked out, to be used as patterns by the pupils. Drill is introduced wherever it is needed.

e) *Tests* are given to determine the results of the teaching, and to show pupils where further drill and practice is needed.

## II. ANGLES. USE OF THE PROTRACTOR. POLYNOMIALS OF THE FIRST DEGREE

a) *General concepts.*—Angles are seen in the classroom, on models, and drawings. They occur in problems in surveying and navigation. Angles are formed by rotation of a line. Various notations for naming angles are taught.

b) *Measurement of angles with the protractor.*—The degree is used as angular unit. The sizes of angles are estimated before measuring. Angles are classified. Measuring angles in polygons leads to functional relations and to equations of the form  $ax+bx+cx=d$ , where  $a$ ,  $b$ ,  $c$ , and  $d$  are numerical coefficients.

Many problems are given which are solved by means of equations of this form, including some of the arithmetical applications. There is a considerable amount of arithmetical work in evaluating algebraic polynomials of the form  $ax+bx+cx$ .

c) *Drawing.*—The protractor is used to draw angles of given sizes, parallel lines, perpendicular lines, angle bisectors, and triangles from given parts. The last give the pupils the first notions of congruence.

d) *Indirect measurement.*—Having learned how to determine distances and angles by actual measurement, the next problem is to find the unknown parts by *indirect* measurement. Here we have some of the most interesting applications of geometry. Various methods are taught showing the pupil how the methods of mathematics are continually improved and opening the way for the study of future mathematics.

(1) *The congruent-triangle method.*—One or two of these problems may actually be worked out of doors. The solution calls for the construction of two congruent triangles. The pupil is led to see that this is often impracticable and even impossible and that a better method is needed.

(2) *The scale-drawing method.*—Besides the measurements, the scale-drawing method requires ruler, protractor, and squared paper for solution. It has the advantage over the congruent-triangle method that after the measurements are obtained the problem may be worked out in the classroom or at home.

(3) *The similar-triangle method.*—Here the problem is solved by means of an algebraic equation. Accuracy no longer depends upon careful construction of a figure, a rough sketch being sufficient. It shows how much more economically and accurately a problem may be worked by algebra than by geometry by one who understands the subject and furnishes a good motive for further study. The pupil learns to solve equations of the forms

$$\frac{x}{5} = \frac{8}{15}, \quad \frac{x}{2} + \frac{x}{5} = 3,$$

and many problems are given which lead to such equations.

(4) *The trigonometric method.*—No attempt is made to define or teach trigonometric ratios. It is, however, the pupil's first experience with the use of the tangent ratio. He learns that the size of the angle determines this ratio, and that by finding the ratio he can determine the corresponding angle by means of a table. He sees the advantage of this method, as only two measurements are needed. The way is pointed to further study of the subject of trigonometry.

### III. USE OF THE COMPASS. THE CIRCLE

a) *Use of the circle.*—So far the compass has been used only as an instrument for measuring. From now on it is also an instrument for drawing circles and arcs. The circle is a closed curved line, and the terms radius, diameter, arc, chord, central angle, etc., are introduced when and where they are needed.

The circle is used in gas meters, longitudes and graphs. Drawing designs is work which pupils greatly enjoy, shows geometric forms in a variety of relations, and gives excellent training in handling ruler and compass. Further use of the circle is found in the fundamental constructions of geometry, in constructing regular polygons, and triangles from given data. The protractor is used to check the accuracy of the drawings.

b) *Circumference.*—Numerous problems involving the length of a circle are worked out. They are always solved by means of the equation  $c = \pi d$ , another equation of the general form  $ax = b$ . Further drill is given in the use of formulas, tabulation and graphical representation, functional relation and variation, evaluation and approximation of results.



c) *Problems leading to equations of the form  $ax=b$  and  $ax+b=c$ .*—The applications which are here given are solved by equations of such forms. Considerable drill in manipulating these equations is given at this time.

#### IV. AREAS. FUNCTIONS OF THE SECOND DEGREE

There has been no need for functions of degree higher than the first and therefore the pupil so far has not met a quadratic function. The study of algebra is now further extended with the study of areas.

a) *The rectangle.*—

(1) *Properties of the rectangle.*—Some of the fundamental properties of the rectangle are found by drawing and measurement. Thus the usual theorems of geometry expressing relations of sides, angles, and diagonals are discovered and learned.

(2) *Area of the rectangle.*—The area is found first by counting the number of unit squares. Later the formula  $bh$  is worked out and used. Many opportunities for correlation arise. Substituting particular values in the formula gives review of products of whole numbers, and common and decimal fractions. Combination of several terms of the form  $bh$  forms problems of evaluating functions like  $\frac{ab+ac+de}{a+bd}$ . Keeping the base fixed and varying the altitude brings in graphical representation and variation.

The parenthesis is used for the first time in finding the area of a rectangle of dimensions  $a+b$  and  $c$ , and  $a+b$  and  $c+d$ . This is made the basis for multiplying polynomials by monomials, and polynomials by polynomials, but all resulting products are either of the first or of the second degree only.

The study of equations is further extended to the form  $3(x+5)=22+x$ .

b) *Area of the square.*—As in the rectangle the area is found by counting units and by formula. The following algebraic topics are taught:  $(a+b)^2=a^2+2ab+b^2$ ; the equation  $a^2=144$ ; graph of the function  $A=a^2$ , the first graph which is not a straight line; square root; the theorem of Pythagoras and equations of the form  $x^2+a^2=b^2$ .



*c) Areas of the parallelogram, trapezoid, triangle, and the circle.—*

In each case the pupil has new experiences with the mathematics already learned, and some extensions are made. Generally speaking, the principal topics are computation, evaluation, drawing, measuring, graphing, study of the formula, and of the equation.

The outline given so far is sufficiently detailed to show that the various subjects of mathematics can be correlated in a natural and simple manner. The remainder of the course takes up the following topics.

V. SURFACES. VOLUMES. FUNCTIONS OF DEGREE HIGHER THAN THE SECOND

No factoring is needed so far and therefore factoring is not taught. Similarly, there has been no need for simultaneous linear equations, positive and negative numbers, and quadratic equations of the form  $ax^2+bx+c=0$ . These topics are therefore all postponed to a later stage. There has been a considerable amount of informal reasoning, but no demonstrative geometry.

In conclusion, the example below serves as a cross-section, showing to what extent a correlation exists. The following topics have been studied in connection with the rectangle:

Quadrilaterals, perpendicular and parallel lines, equality of sides and angles, sum of angles, equations of the form  $ax+bx+cx+dx=360$ .

Perimeters, evaluations of  $2x+3y$ , solution of  $3x+x=60$ .

Diagonals, congruent triangles, equations of the form  $a^2+b^2=c^2$ .

Parallel lines, alternate interior angles, angular relations.

Areas, squared paper, approximation, variation, tables, graphs, formulas, multiplication of polynomials.

The operations with arithmetical numbers, and applications of arithmetic.

Throughout the time in which the course outlined above was worked out careful analytical tests were given. The results have shown that this type of work can be taught with a high degree of attainment. The great amount of concrete material undoubtedly increased clear understanding, and experiences in so many different situations brought about results at least as good as are commonly attained by intensive drill, but more lasting.

## RATING SCALES, SELF-ANALYSIS, AND THE IMPROVEMENT OF TEACHING

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Much has been said recently concerning the value of scales for rating teachers' efficiency. Studies have been made of the characteristics of good teaching and of the causes of failures. Scores of rating scales have been derived and more or less widely used. Constructive conferences have been held to improve the results of classroom instruction. Supervisors and progressive teachers agree that the use of rating scales has stimulated genuine interest in the improvement of instruction.

A generation ago Elliott, Boyce, Ruediger, Kratz, Littler, Moses, and others were carrying on very interesting investigations concerning the essential characteristics of an effective teacher. The productive effort which they stimulated resulted in the organization of a score or more of rating scales which have been used very widely. During the last five years, however, the interest in rating scales has decreased materially as judged by the number of articles which have been written. The explanation for this fact is that rating scales have been more or less indefinite and unreliable. Furthermore, they have been used primarily to rate teachers rather than to improve instruction.

In the May, 1920, issue of the *Elementary School Journal* Dr. Rugg presented a rating scale which marks a distinct step forward. It contains sixty-seven important questions relating to five essential phases of a teacher's work, namely, skill in teaching, skill in the mechanics of managing a class, team-work qualities, qualities of growth and keeping up-to-date, and personal and social qualities. Although the scale can be used by supervisors to distinct advantage, its most important use as described by Dr. Rugg is "self-improvement of teachers through self-rating."

It is interesting to note that this use of rating scales has usually been objected to on the ground that self-analysis by a teacher leads to self-consciousness and inefficiency. The position is definitely taken in this discussion that analysis is very essential to effective progress in the improvement of teaching. A supervisory or teaching device which records only a gross fact, such as "efficiency" or "inefficiency" on a teacher's part, is interesting but not very significant. The device becomes genuinely valuable when careful analysis reveals the causes of "efficiency" or "inefficiency" and suggests remedial measures. One of the best illustrations of the importance of analysis is found in the history of educational tests and measurements during the last ten years.

In the earlier studies which were made large numbers of pupils were tested, more frequently than not, for purposes of comparison. These results showed the standing of a school or a school system in comparison with the average accomplishment of other schools previously tested. Gross results of this type created genuine interest and enthusiasm at first. Gradually, however, a new demand developed on every hand. Teachers not only wanted to know that their pupils were strong or weak in their work but, in addition, wanted to know the causes of these conditions. In order to supply the necessary information and to provide for growth on the part of pupils it was necessary to analyze the results of the tests, to make detailed studies of the needs of pupils, and to outline a program of remedial measures.

The important point on which attention should be centered in this discussion is the very large significance of analysis as an aid in improving instruction. A test or a scale reveals indications of good or of poor work. A detailed analysis supplies explanations and suggests appropriate remedial measures. Very frequently facts of the greatest importance are brought to the attention of teachers through detailed studies which otherwise would have remained unnoted.

The application of the foregoing discussion to the use of rating scales is doubtless clear. Careful, deliberate analyses of the characteristics of good teaching are essential in any program calculated to improve instruction. Too frequently in the past rating scales

have been used to indicate the fact that a teacher's work was satisfactory or unsatisfactory. It is time that we appropriated the lessons which we have learned through the use of classroom tests. We should begin at once to analyze the causes of effective and ineffective teaching and to supply remedial measures wherever necessary.

The analysis by a teacher of her own strong and weak points is one of a series of closely related steps which must receive deliberate consideration by supervisors. In this connection the following problems are very important: selection of the essential qualities of a good teacher through the co-operative effort of the teachers who are to use the rating scale; printing of the list of qualities in the most effective form; deliberate analytical study by teachers and supervisors of the problems which are revealed; and a supervisory program which enables teachers to secure help when it is needed.

The first step in introducing a rating scale in a high school for the purpose of improving instruction is to secure the co-operation of the teachers in selecting the qualities which should be included. Three plans have been followed in this connection in different schools. In many schools a committee is appointed by the faculty to canvass the problem carefully, to prepare a tentative list of qualities or questions, and to submit a report to the faculty for consideration. In other schools the faculty as a whole devotes a number of its meetings to a discussion of the characteristics of good teaching. From time to time a committee is asked to summarize whatever has been accomplished and to submit the report to the faculty at its next meeting. This plan has the advantage that every teacher participates more or less directly in the discussions and is therefore intelligent in regard to the meaning of all the terms used on the rating card.

A third method is described by a superintendent as follows:

In order to provide a basis for passing judgment on the quality of the work done by teachers, we use a rating blank which is an adaptation of one used in Schenectady, New York. Although we incorporated the essential features of the Schenectady plan, we have adapted it to our local needs. In the beginning a committee working with myself on the general problem of

rating teachers decided that this plan with a limited number of modifications would be adequate. A copy was then placed in the hands of every teacher in the system. At teachers' meetings in each building the blank was discussed and suggestions were offered by the teachers. The result was that the blank was approved by teachers as a fair method of arriving at some judgment concerning their work.

It is very important that the co-operation of teachers be secured from the outset. Such a plan enlists the confidence of teachers and insures intelligent participation on their part. If a rating scale, such as Dr. Rugg has organized, is approved by a group of teachers, it can be adopted to advantage. Doubtless this rating scale is much more comprehensive and accurate than a scale which is organized by a more or less inexperienced group of teachers. If a rating scale which has already been organized is adopted, it is very important that each item be discussed thoroughly so that its meaning may be clearly understood.

If the list of qualities is prepared through co-operative effort the form in which the material is printed should receive careful consideration. In the first place, the statements should be worded in the form of questions. For illustration, it is very much more suggestive for a teacher to encounter the question "Do I distribute my questions effectively?" than to encounter the topic "Distribution of questions." The question challenges much more thought than the topic. In the second place, provision should be made on the rating card for a record of the teacher's judgment concerning her efficiency in each characteristic which is listed. This is frequently done by providing a space in which to write A, B, C, D, or E, or 1, 2, 3, 4, or 5. A still more effective device provides a series of columns on the right-hand side of the sheet. Very good work is indicated by placing a check in one of the right-hand columns; poor work, by a similar check in one of the left-hand columns. When a check has been made for each characteristic listed on the card and oblique lines have been drawn connecting these checks, one can tell at a glance the strong and weak characteristics of a given teacher. The following form has been recommended by Boyce:

	V.P.	Poor	Medium	Good	Ex.
1. General appearance.....					
2. Health.....					
3. Voice.....					
4. Intellectual capacity.....					
5. Initiative and self-reliance.....					
6. Adaptability and resourcefulness.....					
7. Accuracy.....					
8. Industry.....					
9. Enthusiasm and optimism.....					
10. Integrity and sincerity.....					

When a rating card is first introduced, teachers should receive a large amount of help from the principal. It has been found advisable for the principal and the teacher to make out separate records for comparison. Differences will be discovered in the ratings. These may be due in part to the fact that the teacher has never passed judgment before on the quality of her own work. More frequently than not these differences are due to variations in the standards which the teacher and the principal have in mind. A comparison of the two records may therefore suggest a number of questions which can be discussed to distinct advantage. The teacher's standards may be too high or too low, or she may have failed in the past to recognize certain strong or weak characteristics in her own work. If conferences based on records of a teacher's work are sympathetic and constructive, they may be genuinely helpful.

If the list of qualities is long, it is advisable to request teachers to limit their analysis to a particular section of the outline. Assume for the moment that the problem of questioning is under consideration. This problem may be made the basis of discussion in the teachers' meeting for the week. References to discussions of questioning may be assigned. Observation lessons may be organized to be visited by teachers who are interested in the problem of questioning. Stenographic lesson reports may be prepared and distributed to teachers for the purpose of illustrating good and poor questions. In other words, it is possible for a principal to organize all the supervisory activities calculated to improve the



quality of classroom instruction about the topics on the rating card. If the work is planned well in advance, one intensive study after another may follow successively throughout the year. During the course of a few months most of the important problems of instruction will be studied, and each teacher will have an opportunity to analyze her own characteristics more or less thoroughly.

It frequently happens that the questions on the rating card are not sufficiently detailed to enable the teacher to discover the exact reason for poor work along particular lines. For illustration, a teacher who asks herself the question, "Are my assignments effective?" may recognize at once that they are not, but may be unable to locate the exact character of her difficulty. In such a case the principal may give valuable assistance by aiding her in a careful study of her problems. It frequently happens, however, that the principal is unable on account of other duties to give help when it is most needed. It is necessary, therefore, to provide devices which can be used effectively by teachers without assistance from the principal. The plan which has been adopted by a number of progressive supervisors is to organize a set of questions which supplement those on the score card. These are placed in the teacher's hands to aid him in analyzing a problem in detail when difficulties arise. A list of such questions, based on the assignment of lessons, and prepared by a committee of teachers in a city system, follows:

1. In the assignment of the lesson am I definite and clear? How frequently do I find that pupils have misunderstood the assignment? Why? Do I make pupils responsible for knowing the assignments?
2. In making the assignment am I sufficiently careful to show the relation of the new lesson to the subject-matter that has been under discussion? Do I prepare the children to attack the new lesson intelligently?
3. Do I make sure that pupils have clearly in mind the points which are fundamental and of primary importance? Do they know the real results to be accomplished in the preparation of the lesson?



4. Is there a minimum assignment? What success does the slow child have with it?

5. Is there a maximum assignment? Does it provide properly and sufficiently for the ability of the brilliant child?

6. What plan have I for stimulating pupils of unusual ability to do additional work? For encouraging slow pupils to accomplish their best possible results?

The following questions relate to the attitude of the teacher to the pupil:

1. What effort have I made to analyze my real attitude and feeling toward my pupils?

2. Is my interest in them genuine and deep, or is it superficial, or of short duration?

3. How much do I know of the home and other outside factors that contribute to making the child what he is?

4. What allowance do I make for poor work, defects in character, or disagreeable qualities in a child when he is handicapped by an unfavorable environment?

5. Have I studied my attitude toward children for the purpose of determining whether I judge the conduct and work of children by adult standards, failing to take into account the limitations of childhood or adolescence?

6. Can I honestly say to myself that in my attitude toward children I am sympathetic, generous, kindly, and just?

The group of teachers who prepared the foregoing lists of questions had previously organized a score card containing fifty or more separate items. A list of questions numbering from five to twenty was prepared for each item of the score card. More than twenty-five pages of mimeographed material of this type were prepared for distribution to the teachers. It is needless to say that these detailed lists of questions will aid any teacher in making a careful analysis of his own problems. A few teachers might think of all the questions which were relevant to a limited number of teaching problems. Few teachers, if any, would think of all the questions relevant to all phases of their work. Especially is it true that the teacher who is encountering difficulty in his teaching receives a large number of suggestions from lists of questions

prepared for his use. They enable him to secure a broader perspective of his problems and to analyze them in greater detail.

The use of rating cards will have relatively little value unless continuous growth on the part of teachers is secured. A principal may provide rating cards but secure little improvement of teaching; he may require self-rating by teachers and provide them with elaborate sets of questions and suggestions but note no improvement in teaching as a result. A supervisory plan is needed which will stimulate constructive effort on the part of teachers. One of the most effective devices in this connection was organized by Professor E. A. Turner at the Illinois State Normal University. Each teacher under his supervision was required to submit a detailed report at the beginning of each week based on the following points:

1. The major problem attempted last week
2. A description of the means employed in its solution
3. A statement concerning the progress which was made
4. A discussion of the obstacles which interfered with best results
5. A statement of the major problem for solution this week
6. A description of the means to be employed
7. A discussion of the obstacles which will probably be encountered

In order to aid the teacher in locating her major problem Professor Turner prepared a list of twenty or twenty-five questions covering the most important phases of teaching. Rating cards now supply excellent material in this connection. If teachers encountered difficulty in selecting a problem or if they chose inappropriate problems, they were given help. As one report after another was submitted they were read carefully and helpful suggestions returned to the teachers. Detailed conferences were frequently held with individual teachers; group conferences were held to discuss problems of common interest to a number of teachers. Bulletins of suggestions were issued to teachers from time to time. Suggestive articles, books, and bibliographies were sent to teachers whose reports indicated that they could profit from such helps. Demonstration lessons were organized to illustrate effective teach-

ing technique. Schedules of visits were organized, that teachers could observe the methods employed by other teachers in securing effective results.

Throughout this discussion rating cards and self-rating by teachers have been emphasized as significant devices in a program of supervision. Connected with such a plan are numerous advantages. It directs the teacher's attention to significant problems of teaching; it leads to a careful analysis of strong and weak points; it concentrates constructive effort for a period of time on a single problem of methodology; it requires careful analysis and resourcefulness, usually leading to rapid growth; it establishes a means of effective co-operation between principal and teacher; it secures for a principal a body of information concerning the needs of teachers which enables him to distribute his time and energy among them appropriate to their needs; and finally, it leads to a continuous critical study of problems of teaching so frequently omitted in otherwise progressive high schools.

## A COMPARISON OF TWO METHODS OF STUDYING WITH APPLICATION TO FOREIGN LANGUAGE

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The purpose of this study is to determine the relative value of two methods of studying paired associates. By paired associates is meant two lists of words, one opposite the other. An excellent example of this is a list of words with definitions or a foreign vocabulary with the English equivalents. Thus the foreign words might be regarded as the basic element, while the English equivalents would be called the associates. In the materials of the experiments described in this study proper names are the fundamentals, and each one has associated with it a descriptive adjective; the adjectives thus become the associates.

A first method is labeled recall, while a second method is named study. In using the first method the students divided their time into two parts: first, they studied the series for a certain length of time and, second, they spent the balance of the time in recalling as many of the associates as possible. While working with the second method the subjects spent the entire time in trying to fix the correct associates; that is, their whole time was spent in studying without trying to test their memory by the recall method. Thus it is noted that what has been mentioned as a distinction between the study and recall methods is largely a matter of the division in the use of the allotted time. When a student uses the study method, he spends the entire time endeavoring to fix each associate with its correct fundamental; he deliberately refrains from testing his grasp of the material by looking away from the paper and saying as many as possible from memory. On the other hand, when one is employing the recall method, he follows the procedure just described, but after a certain period of time only the associates are removed and the student endeavors to

recall from memory during the remainder of the specified time as many as possible of the associates in connection with the correct fundamentals.

The subjects in this experiment were students in the classes in psychology at Northwestern University. All were in the second, third, or fourth year of college work. Both men and women were in each of the groups.

The procedure of the experiment was as follows: The material employed consisted of fifteen proper names with a descriptive adjective after each name. For the sake of clearness one of the lists of names and adjectives is presented at this point:

Hammond—religious	Walker—neat
Rosenow—experienced	Ruml—resourceful
Hardy—fat	Byrne—spendthrift
Judd—tall	Bradam—skinny
Angell—interesting	Stokes—bluffer
Wooley—studious	Higgins—strong
Merrill—practical	Kirk—crude
Dalton—exceptional	

The object in the learning was to be able to fix the right associate with each name. The students were given full explanation as to what was expected of them. They were urged very strongly that during the time they were studying the names they were not to stop and try to recall them from memory. The recall or test group studied for three minutes; then the original papers were collected and a second sheet was passed to the subjects on which were typed the names without the associates; they were allowed two minutes in which to write as many of the adjectives as possible. Thus, with the recall group, the time was divided into three minutes' study, interval of two minutes, and recall of two minutes. After giving the same explanation and warning to the subjects in the study or control group, sheets with the same list of names were given them. These students were permitted to study the associates for three minutes; turn over the papers for a period of two minutes and then study for an additional two minutes. It is observed that each of the two groups endeavored to learn the material for a period of five minutes; the difference

was in the manner of employing the last two minutes. The aim in this experiment was to discover what effect this difference in the last two minutes had upon the retention of the material. To determine this result the retention of each group was tested after an interval of four days. The results of this part of the experiment will be found in Table I.

TABLE I  
COMPARATIVE RESULTS OF THE TWO METHODS

Group	Subjects	Average	Percentage Score	Percentage Better
Recall (A).....	37	7.19	47.9	27.7
Study (B).....	29	5.62	37.5	.....

The names to the left in the table indicate the respective groups. Included in the table for each group are the number of subjects, average number of correct associates retained, the percentage of the fifteen pairs remembered, and the percentage that either method is better.

It is to be noted that the recall group did better in whatever terms the results are stated. In other words, the recall group did nearly 28 per cent better; the study group did not do quite three-fourths as well as its competitor. For these results there are several possible causes. It may be that the one group is superior in ability. Recall may have been the deciding element. Two additional factors were in favor of the test group, that of writing and of position; during the two minutes of immediate recall the words were written and the position of the words was the same as that employed in the delayed recall. Before any conclusions can be drawn it is necessary to determine the main causal factors.

In order to determine the effect of group differences, a second list of fifteen names with associates was employed. After an interval of about a month a second experiment was performed. This time Group A studied while Group B employed recall. The previously described method of procedure was also followed in this instance. The results are given in Table II.

TABLE II  
RESULTS OF THE SECOND EXPERIMENT

Group	Subjects	Average	Percentage Score	Percentage Better
Recall (B).....	30	7.17	47.8	19.5
Study (A).....	40	5.98	39.9	.....

In this experiment retention was also tested after an interval of two weeks. These data are presented in Table III.

By studying the data of Tables II and III it is found that the recall group does much better in the three instances of measurement when retention is tested after an interval of four days or after two weeks. It is interesting to observe that the average and percentage scores, larger in Table III than in Table II, are evidence in favor of the recall method. Both groups spent the same amount of time in recall at the four-day period; ten days later the score of each group had improved. However, the per-

TABLE III  
RESULTS OF SECOND EXPERIMENT AFTER TWO WEEKS

Group	Subjects	Average	Percentage Score	Percentage Better
Recall (B).....	30	7.50	50.0	15.4
Study (A).....	40	6.49	43.3	.....

centage better decreased by two points. The cause of this is unknown.

At this point the conclusion can be made that the superiority of the recall method is not due to group differences. Moreover, it is not thought that the difference in difficulty of the material studied is significant. The closeness of the results in the two experiments is highly suggestive of a close similarity in difficulty of material. The validity of the foregoing conclusion is strengthened by comparing the results from the same group when using different methods of studying. To facilitate this comparison Table IV was prepared.



TABLE IV  
COMPARISON OF RESULTS FROM SAME GROUP

	AVERAGE	PERCENTAGE SCORE	PERCENTAGE BETTER
Group A			
Recall.....	7.19	47.9	22.5
Study.....	5.98	39.9	.....
Group B			
Recall.....	7.17	47.8	27.4
Study.....	5.62	37.5	.....

It is readily seen when observing the data in this table that each group excels when employing the recall method; each group does practically one-fourth better under this condition.

Further, a much larger percentage of the individual students did better when using recall. The record of each subject in the two experiments was compared, noting whether he did better or worse, or whether there was no change when employing the recall method. The percentage of the total number of subjects in the gaining, the losing, and the stationary groups was then computed. Table V contains these data. Note that from 65 to 76 per cent of the individuals retain more under conditions of recall; from 16 to 24 per cent retain less; while from 8 to 10 per cent do equally well with either method. Thus it is seen that the large majority of the individual subjects do better with the aid of recall.

TABLE V  
PERCENTAGE OF STUDENTS SHOWING GAIN, LOSS, AND NO CHANGE UNDER  
CONDITIONS OF RECALL

	Gain	Loss	No Change
Group A.....	65.51	24.14	10.35
Group B.....	76.00	16.00	8.00

To determine the significance of the positional element in the recall method, two additional groups of subjects learned the two sets of material described above, employing the recall method under the same conditions as those of the previous groups with

one exception. When tested for retention at the end of four days, the stimulus words were presented in a different order from that used when testing immediate recall. To be more specific, the difference in the methods these two groups employed was this: In the first two experiments the original material was arranged as follows:

Name	Associate
1.....	A
2.....	B
3.....	C
4.....	D
Etc.....	Etc.

The group employing the recall method had the names presented to them during the time of recall in this changed order: 3, 5, 6, 2, 1, etc. This last-mentioned order was used in the tests for retention four days later. Thus it is seen that the recall groups at the time of testing retention had had previous experience with the order in which the names of the series were presented. This is what is referred to as the positional element, and it is the effect of this factor that is to be determined at this point. Table VI contains the data for this comparison.

TABLE VI  
COMPARISON OF RESULTS TO DETERMINE EFFECT OF POSITIONAL ELEMENT  
IN RECALL

GROUP	SUBJECTS	AVERAGE	PERCENTAGE SCORE	PERCENTAGE BETTER
Series X				
Test (B).....	30	7.17	47.80	16.1
Control (C).....	28	6.18	41.20	.....
Series Y				
Test (A).....	37	7.19	47.90	18.5
Control (D).....	33	6.06	40.04	.....

The test groups in this experiment had the positional element in their favor while the control groups followed the same method of procedure but lacked the use of the position of the series. The test groups have better scores when stated in both relative and absolute terms. In both instances the test groups did from 16 to

18 per cent better. It is very doubtful that chance caused these results; the similar results obtained in the two comparisons tend largely to eliminate this factor. The group difference factor proved to be of negative value. Hence, the conclusion is justified that positional element is the main causal factor in determining the results in Table VI. In other words, the positional element is a significant cause in fixing in memory paired associates; it is one of the factors in determining the superiority of the recall method of studying.

For the purpose of comparing the value of writing as one of the aids in fixing the associates, Group C after an interval of several weeks learned Series Y. In the foregoing test Group D had

TABLE VII  
COMPARISON OF RESULTS TO DETERMINE EFFECT OF WRITING IN RECALL

Group	Subjects	Average	Percentage Score	Percentage Better
Test (D).....	33	6.06	40.4	6.5
Control (C).....	28	5.70	37.9	.....

TABLE VIII  
RESULTS FROM SAME GROUP (C)

With Writing.....	Subjects	Average	Percentage Score	Percentage Better
Without Writing..	28	5.70	37.9	.....

studied Series Y by the recall method without the positional element, but with writing; Group C now learned the same series without the positional element but with writing. To accomplish this result, the stimulus words were given the subjects and they recalled for two minutes from memory but did not write down the associates recalled. In Tables VII and VIII will be found the results for this part of the experiment.

In addition to comparing the data of different groups on the same material, results from the same group (C) with different materials can now be compared. This group followed the same procedure in the two tests, except when studying Series X the recalled associate was written opposite the name, but on learning Series Y the adjectives were recalled but were not written.

In both instances of comparison the results are superior when writing was employed. The test group did 6.5 per cent better than the control group while the same group improved nearly 9 per cent with the aid of writing. It is thought that these results are not due to group or chance differences, nor to difficulty of material, but rather to the factor of writing. From these data the conclusion may be drawn that writing is one of the causal factors in determining the superiority of the recall method. This conclusion is supported with the data obtained by computing the percentage of individuals affected by the writing. It was found that 57.15 per cent of the subjects in Group C did better when writing, 38.09 per cent showed a loss, while 4.76 per cent were not affected by the change of method.

The outstanding conclusion based upon the data of this experiment is that the recall method is superior as an aid in the mastery of paired associates, determined by tests for retention. This is true whether considering group or individual results. Both groups obtained results superior by from 20 to 27 per cent when employing the method of recall. Sixty-five per cent of the individual subjects in one group and 76 per cent of the members of the second group attained a better score under the conditions of recall. This conclusion is further supported when the correlation between immediate and delayed recall for the two groups is computed. The correlation for Group A is .79 while that for Group B is .92. This means that those students who were able to recall the more correct associates in the first instance also obtained the higher scores when testing retention four days later. In other words, the first recall had so aided in fixing the series in memory that the correct associates were the better retained over the longer period.

This result cannot be due to mere chance differences; the consistency with which the results proved the superiority of the method of recall eliminates the possibility of chance being a significant factor. Recall remained the superior method when different groups learned the same series and also when the same group learned different associates. This fact proves that differences in the ability of the groups could not cause the results. The two series employed in the experiment are highly similar in difficulty;

the close agreement of the scores in Tables I and II support this statement. Hence, the probability of difference in material being a significant factor is removed. The factors producing the foregoing results have been proved to be three, namely, recall, writing, and the position of the associates in the series. The writing and positional factors were isolated and proved to be significant; recall was present in each test and apparently was a causal factor; note the slightly superior results obtained in the first two experiments. It was proved beyond doubt that when the three elements were combined superior results were obtained.

The materials of this experiment are similar to a foreign-language vocabulary of equal length with English equivalents. The applications of the experimental results to the mastery of a foreign vocabulary are readily made. A more positive test of this application is the next part of this experiment.

For the material in this experiment fifteen Hebrew words were selected and transliterated into the English alphabet. This gave words of a foreign vocabulary that were totally unfamiliar to the students, with English equivalents. The list is as follows:

Gagelakah—kingdom	Amar—wool
Midekkar—wilderness	Peah—mouth
Ishon—strength	Rohab—pride
Mahalak—journey	Ummah—association
Tashubah—return	Sheleg—snow
Yekum—substance	Quadash—clean
Avvehreth—blindness	Tsiyba—station
Irad—fugitive	

The subjects were men and women in two additional classes in psychology, called Group E and Group F, respectively. Group E studied the series five minutes, then employed recall under the same conditions as above for three minutes. Group F studied the associates continuously for eight minutes. Retention was tested at the end of seven days. The data are presented in Table IX.

TABLE IX  
COMPARISON OF RESULTS WHEN LEARNING HEBREW VOCABULARY

Group	Subjects	Average	Percentage Score	Percentage Better
Recall (E).....	22	6.27	41.8	101.9
Study (F).....	20	3.10	20.7	.....

Group E secured a better score when stated in absolute or in relative terms. When comparative terms are used the test group (E) did twice as well as the control group (F); in other words, E did over 100 per cent better. In point here are all proofs and arguments presented above, as to the cause of this result. Hence, it can be concluded that of the two methods, recall is superior for memorizing a foreign vocabulary. Naturally the question arises as to what use the teacher may make of the experimental results presented in this paper. Several items may be noted. In any instance where the student has to memorize paired associates, e.g., learning a foreign vocabulary, the teacher should explain how to use the recall method. In the procedure, members of the series should be kept in their original order, making use of the positional element. After the material is well learned, this element will probably not be needed. Students should be urged also to use writing as an aid in learning. Thus the teacher would be making use of the recall method for the entire group of students.

Due allowance should be made for individual differences. No method is apt to be best for all the students. It will be remembered that from 65 to 76 per cent of the subjects did better under the conditions of recall. With from 8 to 10 per cent it made no difference which method was used, while from 16 to 24 per cent made a poorer record when using the recall method. A short experiment on the order of the one here presented could be made to discover such individual differences. In the matter of writing, individual variations again manifest themselves. Fifty-seven per cent of the students did better by writing, while 38 per cent made a lower score. Evidently, not all students should be made to write in the memorization of materials. This could easily be tested out in a short time in any class. Two short vocabularies of the same relative difficulty could be selected. One day the students might learn one series with writing; the next day they might learn the other series without writing. A comparison of the records of each student for the two days and after an interval of several days a test for retention will disclose which students need writing as an aid in learning. Having this information, the teacher certainly should suit the instruction to the individual needs of her pupils.



## Educational Writings

### REVIEWS AND BOOK NOTES

*Federal aid to public education.*—Whether or not it is apparent that the nation is deeply concerned with the problems which confront it in connection with the support and development of public education, certain it is that there has never been a more pressing need for thoughtful consideration of the possibilities which lie within any comprehensive program of federal aid for schools. With the prospect that Congress will again be called upon to vote on the Smith-Towner Bill in its present form, it is to be hoped that the discussion of its provisions will be widespread and that the greatest possible publicity will be attained. It is therefore most opportune that the volume<sup>1</sup> prepared by President Keith and Professor Bagley should appear at this time.

Setting for themselves the problem of demonstrating "how the public schools may be made efficient on a nation-wide basis," the authors trace the history of federal enactments in aid of public education, noting the consistent trend toward larger support of a wider range of educational activities, and closing this phase of the discussion with a summary of those principles embodied in these acts which define the right of Congress to support such measures as are now being proposed. A section is then given to an analysis of the deficiencies of the public schools as these were emphasized by the experiences of the war period. Existing illiteracy and lack of effective Americanization plans, inadequate support of educational institutions, inequalities of educational opportunity, inadequate rural schools, and poorly trained teachers, are among the conditions which demand relief. The latter portion of the book considers these several deficiencies in the light of the provisions of the Smith-Towner Bill.

The reader cannot fail to be impressed with the splendid organization and the clearness of presentation which characterize the historical survey as given in the earlier chapters. The second phase of the discussion is likewise discriminating in its analysis of such weaknesses as are noted and the conditions from which these arise. Apart from the fact that certain generally recognized weaknesses are not mentioned, the book thus far seems well calculated to establish a practical basis for the solution of the problem set forth in the authors' statement of their purpose.

<sup>1</sup> JOHN A. H. KEITH and WILLIAM C. BAGLEY, *The Nation and Its Schools*. New York: Macmillan Co., 1920. Pp. xvii+364.



There are, however, two outstanding features of the discussion which seem not to comport with this original statement of purpose. In the first place, the several chapters dealing with the specific provisions of the Smith-Towner Bill and the conditions these seek to improve refuse throughout to recognize the possibility of any deficiencies in the bill as it is now designed. Logical, and for the most part objective, in its analysis of certain conditions which require relief, the treatment too often abandons its scientific procedure in its application to such situations of the particular provisions of this bill which are said to effect the needed change—and this at times in the face of the contrary evidence of the objective data on which the discussion is presumably based.

An example of this type of overzealous support of the measure may be taken from the discussion of inequalities of educational opportunity in chapter xx, which topic receives an appropriate emphasis in the consideration of the bill. A table is presented (p. 268) showing the wealth per person of school age for each state, the calculations being based on the census of 1910 and estimates of wealth for 1912. Using this table to establish the fact of existing inequalities, it is pointed out that

the taxable wealth behind each person of school age varies from \$2,026.01 in Mississippi to \$27,360.70 in Nevada. . . . California can raise \$30.00 for the education of each person of school age by a millage one-seventh as large as is necessary in Mississippi to raise the same amount. The tax rate in Missouri would have to be twice as great as in Iowa to raise a given sum for each person of school age [p. 269].

A second table (p. 271) reduces certain facts of wealth, population, and age distribution to a percentage basis, and similar concrete examples of glaring inequalities are cited. A third table (p. 276) shows how the allotment for the equalization of educational opportunity will be distributed among the states, assuming that each takes full advantage of its opportunity in this respect. Presumably this table is constructed to show that the operation of the espoused bill will at least tend to alleviate the conditions described. But no mention is made of it and no specific example is drawn from it to aid the authors in arriving at the unqualified statement of conclusion, that "such Federal aid as is here advocated would ultimately remove these inequalities throughout the country" (p. 272).

Supposedly, the removal of inequalities by the application of this provision of the Smith-Towner Bill means the removal of the disadvantage under which Missouri labors in an effort to equal the educational opportunities afforded by Iowa. According to the table presented, Missouri will receive a total allotment of \$5,105.50 per year more than is given to Iowa. From the necessity imposed by the bill of providing an equal sum by state taxation, Missouri will have available, so far as this particular fund is concerned, a total of \$10,211 more than Iowa, which obviously admits of no appreciable reduction in the rate of taxation required for the support of schools. Mississippi is contrasted

with Nevada and with California. The data of the table mentioned show that Mississippi will receive from the equalization fund two and one-half times the amount given to Nevada, but only 85 per cent of California's share. Thus, the real evidence of the table is simply that the distribution of federal aid as contemplated results in one case in affording a relief so meager that it does not justify the effort, in another case in providing an amount which may be more or less adequate, and in a third case in increasing the existing inequality.

A second criticism that should be noted is the scant consideration given the matter of federal support of vocational education below the college level. No significant place is found for such training in the general scheme of making the schools "efficient on a nation-wide basis." The short chapter devoted to the question of vocational education contains a single paragraph of general observations concerning the Smith-Hughes law, following which an outline of the main features of this act is presented "without comment."

Thus by refusing to recognize the shortcomings of a particular program, and by failing to incorporate all the essential elements of equalized educational opportunity into a scientifically determined and co-ordinated scheme of federal support of public education, the book impresses the reader as falling short of its splendid opportunity to contribute to the adequate solution of the problem of most immediate importance to "the nation and the schools."

*Guiding principles for teachers.*—The results of educational science are still fragmentary, and the gaps must be filled by philosophy. They are detailed and specific and must be unified and systematized by some more general method of consideration. The findings of biology and psychology and the conclusions of educational philosophy are derived from different points of view and expressed in different terminology. They must be harmonized by the interpretation of one body of findings into the language of the other, if the student of education is to be saved from confusion.

These are the conceptions which cause Dean Coursault to offer his new work<sup>1</sup> on the principles of education. Attacking the problem from the point of view of teleology and verifying his conclusions by comparison with the findings of natural science, the author deals with human development by considering in turn the individual, the social, and the educational processes. Individual development "consists in acquiring new purposes together with the ability to use means of control in realizing them." Society guides the acquisition of purposes and means of control. "The educational process . . . unites the individual and the social processes by selecting social patterns and by adapting them to the nature of the individual."

Consistently with this conception of development and education, Dean Coursault concludes that there are but two general types of teaching—guidance

<sup>1</sup> JESSE H. COURSAULT, *The Principles of Education*, "Beverly Educational Series." Boston: Silver, Burdett & Co., 1920. Pp. xxii+468.

in the acquisition of purposes and in the means of control. Likewise, there are two types of curriculum material—history and the fine arts, by which social practices are evaluated and related to social purposes; and the sciences, in which the procedure of discovering means of control is presented. He would distinguish sharply between history and social science. From his general conception he deduces a set of principles for curriculum-making and a discussion of methods of teaching.

The book is excellently organized for teaching purposes. Concrete illustrations abound. With each chapter lists of reading references and related problems are given. The reinterpretation of the contributions of the great educational philosophers is clear and concise, and is interwoven most appropriately with the unfolding of the theme.

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*Village schools.*—Between the rural school and the city school is the village school which is usually not included in the discussions for the improvement of either of the first two. To call attention to this neglected part in our systems of education, the Bureau of Education has directed a study of village schools, the results of which are presented in a recent bulletin.<sup>1</sup>

The bulletin deals principally with the administrative and supervisory problems of village schools and the course of study adapted to them. There are, in addition, brief discussions of "The Village School as a Community Center," "The Village Library," "The School Term," "Buildings and Grounds," and the "Health" of the village. Making the village the consolidation center for all the schools in the immediate district is strongly urged. The relations of administrative officers to each other, to the teachers, and to the people are studied. The comprehensive discussion of the work of the supervising principal is especially pertinent. The possibilities of consolidation are shown by illustrations drawn from the work of the consolidated school at Five Points, Alabama.

The chief value of the bulletin lies in its direct treatment of a subject which has hitherto been comparatively neglected. It will lend inspiration and practical help to all interested in the problems of village schools.

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*The problem of the wage-earning child.*—Though educators have been greatly impressed by the figures concerning elimination from school at the ages of fourteen, fifteen, and sixteen, they have been far from visualizing clearly the size and the condition of the army of out-of-school youth. Mrs. Reed's discussion<sup>2</sup> will give much needed vividness to their realization of the

<sup>1</sup> W. S. DEFFENBAUGH and J. C. MUERMAN, "The Administration and Supervision of Village Schools," *United States Bureau of Education Bulletin No. 86*, 1919. Washington: Department of the Interior. Pp. 63.

<sup>2</sup> ANNA Y. REED, *Junior Wage Earners*. New York: Macmillan Co., 1920. Pp. xii+171. ✓

problems involved. It is startling to read that "51.3 per cent of our total boy and girl population from 14 to 21 years of age is in wage-earning occupations," and that "out of 3,569,347 boys and girls 14 and 15 years of age, 1,094,249 are wage-earners."

How incompletely the problem is realized by the public is indicated by the fact, cited by Mrs. Reed, that as recently as 1913 one of our greatest American cities "spent more than \$1,500,000 for high-school instruction for 13,039 boys and girls and nothing for the 13,742 between 14 and 16 who were eliminated from school and employed."

Besides presenting the magnitude of the problem, and sketching the history of a decade of effort to find a solution, the book presents a discussion of the function and methods of vocational guidance and placement. Though far from claiming that conclusions of scientific weight can now be presented, the author urges a scientific attitude and method in all the work. The major responsibility for educational functions of vocational guidance she would assign to the school system, while responsibility for placement should be taken by the employment system. As would be expected from Mrs. Reed's record in Seattle and from her connection with the Junior Division of the United States Employment Service, the whole discussion is immensely practical. Its freedom from the visionary or the sentimental may be evidenced, however, by citing her insistence that there must be no "mental reservations in the mind of the corps (of placement workers) as to the desirability of any line of work which is necessary for the welfare of society and is recognized as a legitimate occupation."

Footnotes give much bibliographical material, while references in the context to sources and workers in the field will be of great value to the student. Suggestions as to where desirable forms, plans, etc., can be secured are also frequent.

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*Newark arithmetic survey.*—The second of a series of subject surveys in the Newark, New Jersey, schools is based on the results obtained by giving the Woody Arithmetic Scales, Series B, in Grades IV B to VIII A inclusive, and the Stone Reasoning Test in Grades V B to VIII A inclusive. The report<sup>1</sup> is an interesting example of the supervisory use of tests based on a rather full statistical treatment of the scores, for which the term "survey" is perhaps too comprehensive a title. Comparing the rank of the schools in the fundamentals and in the reasoning test, Assistant Superintendent Sexton finds that the correlation "is very close." His comparison of results in groups of schools of differing racial composition is an interesting feature of the report.

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*Agricultural instruction in secondary schools.*—The effort to improve agriculture by means of instruction given as resident or extension work by American

<sup>1</sup> ELMER K. SEXTON, *Arithmetic Survey in the Public Schools of Newark, New Jersey*. Newark: Board of Education, 1919. Pp. 30.

schools and colleges has had rather an extended history, and in the phases through which it has passed has made great gains in its character and availability for the people. In the doctor's thesis<sup>1</sup> of the late Harry Percy Barrows, published by the Bureau of Education, its development is traced from voluntary beginnings through the period of experimentation by the land-grant colleges, the extension work culminating in the administration of the Smith-Lever Act, and the growth of secondary schools and departments of agriculture. The growth of state aid in agricultural instruction in secondary schools is traced, with rather detailed study of the plans evolved in those states whose practices were influential in determining the plans employed in federal aid under the Smith-Hughes Act. A characteristic of the study is the presentation of the details of the organization, equipment, administration, and instruction in outstanding schools of both secondary- and normal-school rank. The history and present status of federal aid are discussed, as is the training of teachers of vocational agriculture by the universities and land-grant colleges.

*Literature for the junior high school.*—Teachers of reading and English in seventh, eighth, and ninth grades will appreciate how real a service has been rendered by the compilers of a recent two-volume textbook<sup>2</sup> in literature for those years. The instructor will be hard to please who cannot find here something for his purposes. The very quantity of the material is surprising in such fairly compact volumes. Each book contains close to one hundred selections, yet room is found for the inclusion of *Evangeline* and the *Midsummer-Night's Dream* in their entirety. Indeed the lure of the "gobbet" has been well resisted; with rare exceptions, each offering is a literary whole, complete in itself, and not merely a passage.

The range of material is naturally wide, and the most recent literature is generously represented by appropriate selections from Galsworthy, Noyes, Service, and Braley, together with such war poems as Joyce Kilmer's "Rouge Bouquet," Alan Seeger's "Rendezvous with Death," Vachel Lindsay's "Abraham Lincoln Walks at Midnight," and Doyle's "When the Guards Came Thru."

The contents are literature and of the best, but they are almost equally literature of youth. The ballads, narrative poems, stories of adventure, and the animal tales by Roosevelt, Kipling, Parkman are all admirably chosen for the audience in view. Inspirational values, also, and the social-civic ideal have clearly been uppermost considerations. To this end are provided not merely such familiar selections as Washington's letters, Hale's *Man without a Country*, and Hubbard's *Message to Garcia*, but a stirring selection of war

<sup>1</sup> HARRY PERCY BARROWS, "Development of Agricultural Instruction in Secondary Schools," *United States Bureau of Education Bulletin No. 85*, 1919. Washington: Department of the Interior. Pp. 108. \$0.15.

<sup>2</sup> W. H. ELSON and CHRISTINE KECK, *Junior High School Literature*. Chicago: Scott, Foresman & Co., 1919. Book I, pp. xiv+624. Book II, pp. 660. ✓

literature and some glimpses of American life in such widely differing settings as *The Riverman* of Stewart Edward White or Herschel Hall's *Pete of the Steel Mills*.

This material has been carefully organized in textbook form—an admirable example of the newer type. Part I of each volume consists of nature poems and stories; Part II, of adventure tales; Part III, of verse and prose accounts of patriotic service in different countries; while Part IV bears the title "Literature and Life in the Homeland." Each main division is provided with an introduction designed to stimulate interest and is thereafter subdivided into groups of selections fairly homogeneous in character. After each tale or poem comes a brief sketch of the author, some further reading references, discussion notes, theme topics, and on occasion even detailed suggestions for dramatization. Not least serviceable are the comprehensive glossaries which close both books.

*Language handbooks in the series method.*—From Miami University come the first two numbers<sup>1</sup> of a projected series of textbooks for the introductory teaching of foreign languages by the series method. The word "teaching" is here used advisedly since a cardinal tenet of this system is, of course, that each lesson must be presented and employed orally before the student is permitted to turn to the text. Book I of this series takes the form of a comprehensive exposition of the Gouin or series method. The treatment is concise, yet rich in detailed instructions and illustrations. As is well known, the essence of this method is that each lesson shall consist of a sequence of complete sentences setting forth some act or process with which the students are familiar. These sentences are first presented orally by the instructor, with demonstration where possible, then repeated by the pupils, and finally read and copied from the text. The purposes and limitations of the method are clearly defined. The object is to acquire command as rapidly as possible of an initial basic vocabulary of some fifteen hundred or two thousand terms and phrases, among which verbs, "the soul of a language," shall be central. This purpose, Professor Brandon believes, can be achieved in about one hundred and fifty graded series lessons. From that point on, regular reading can be taken up with profit, and further employment of series lessons is unwise.

Handbook II constitutes Part I of the French texts. It contains fifty-seven series units, grouped under the division headings: "Introductory," "La Toilette," "Le Repas," "L'École," "Le Temps," "Le Bureau," and "La Correspondance." In Part I, at least, the common fault of imperfect grading has been well avoided. The author has succeeded in keeping the vocabulary strictly limited, practical, and cumulative. It is to be hoped that the later parts will allow for the inevitable falling-off in mental acquisitive

<sup>1</sup> E. E. BRANDON, *The Series Method in Foreign Language Instruction*. Pp. 50. \$0.50. *Series Lessons for Beginners in French*, Part I. Pp. 120. \$0.75. Nos. 1 and 2 of Independent Authors Series. Milwaukee: Modern Language Press, 1920.



power as the mind becomes better stocked with the new vocabulary, and will not attempt to introduce so many new words per lesson as are at first possible. Following the text of each lesson are varying assignments for home work of students, and the exposition of a single principle of grammar or syntax. Here again the exact amount which can be adequately assimilated has been carefully gauged. Without doubt, however, the most noteworthy innovation in these texts is the explicit provision for the teaching of so-called subjective language. After the sentence series dealing with the topic of a lesson, come a set of remarks for use by teacher and class in incidental conversation. Beginning with such simple phrases as *Commencez, Monsieur, Continuez, Volontiers, and Très bien*, the lessons progress in carefully graded steps until a fairly adequate vocabulary is built up for expressing the feelings, wishes, difficulties, and personal attitudes incident upon class work. This is a help to the student and will go far toward insuring the success of this method in the hands of less-experienced teachers.

*Business organization and administration.*—The important place occupied by the industries in our interdependent social order demands that people become intelligent upon the problems involved in business. Citizens of the future must be trained to take critical and analytical attitudes toward these problems. One naturally turns to the schools as the place where these attitudes can best be given their proper impetus.

A new book<sup>1</sup> by De Haas designed for use as a textbook in high school deals with the most essential phases of business in a way intended to develop habits of intelligent criticism. The book assumes that our present economic system is basic. It only seeks to stimulate greater efficiency in our present business systems and a higher conception of the place they occupy in our democracy.

Realizing that our present most vital industrial problems are labor management and payment of wages, the author devotes three chapters to the discussion of these problems. He would have the student know that the human factor in industry must not be neglected. The need for sympathetic co-operation of management, foremen, and workers is clearly shown. The work of a service department in bringing about this co-operation is described.

Chapter i describes the elements of business success as being knowledge, scientific attitude, honesty, service, social sense, and human sympathy. Chapter ii classifies business organizations and the departmental divisions within an organization. Efficiency in business is regarded as a matter "not of purely individual interest, but of social concern." Other subjects treated are "Financing an Enterprise," "Planning the Building," "Purchasing," "Marketing," "Selling and Advertising," and "Foreign Trade."

<sup>1</sup> J. ANTON DE HAAS, *Business Organization and Administration*. Gregg Publishing Co., 1920. Pp. ix+353. \$1.60.



The book is written in a pleasing style and is well arranged. It does not intend to give detailed knowledge of business problems. Its aim is to aid the teacher in awakening proper attitudes in the minds of the students. Teachers will find it helpful in this respect.

*First-Year Latin.*—A recent text<sup>1</sup> from Syracuse University is particularly commendable for its development of the bearings of Latin upon our English speech. At each step the beginner is led to see the relation to English grammar and syntax, while each word in the lesson vocabularies is directly associated with some common English derivative thereof.

Also deserving of mention are the selections provided for translation. These display an unusual variety and interest. Epigrams, humorous narrative, and brief accounts of Roman customs, heroes, or important historical incidents avoid the monotony of exercises based entirely on Caesar or Ovid. Numerous illustrations, several of which are in color, add to the general attractiveness of the book.

*Applied chemistry.*—It is generally agreed that the essential principles of chemistry and the application of these principles to ordinary conditions of living should be made familiar to every boy and girl during school life. Aiming primarily at the provision of such instruction for the 90 per cent of high-school pupils who do not go to college, Dean Vivian presents a new text<sup>2</sup> which emphasizes the applications of chemistry to household economics, soil fertility, and plant and animal production.

The book is divided into three parts; the first part, on "Inorganic Chemistry," treats of the essential facts of chemical composition and reaction, bringing the pupil to an acquaintance with these facts through an analysis of elements which are commonly known or of some of their familiar compounds. That is, the procedure is always from the known to the related unknown. Part II deals with the applications of chemistry and with facts and theories which are necessary to an intelligent understanding of the phenomena of daily life. The several chapters relate to such topics as "Fats," "Oils and Soaps," "Digestion," "Nutrition," "Feeding Farm Animals," "Milk and Its Products," "Food Preservation," "Antiseptics and Disinfectants." Part III is devoted to the study of "Soils and Fertilizers," the twelve chapters dealing with various phases of the problem of tilling and preserving soil. A passage from this section is indicative of the practical character of treatment of topics in Parts II and III.

*How to recognize a sour soil.*—The character of the vegetation gives some indication as to whether or not the soil is acid. Where such plants as common sorrel, horsetail,

<sup>1</sup> P. O. PLACE, *Beginning Latin: An Introduction by Way of English*. New York: American Book Co., 1919. Pp. xviii+398. \$1.36.

<sup>2</sup> ALFRED VIVIAN, *Everyday Chemistry*. New York: American Book Co., 1920. Pp. 560. \$1.64.

rushes and mosses take possession of the land, it is a strong indication of acidity, because these plants can withstand a large amount of acid and hence persist after the soil has become too sour for the growth of more desirable plants. Sometimes an acid soil becomes so covered with sorrel as to give a reddish tinge to the entire field.

The persistent failure of clover is an indication of soil acidity, while a good growth of clover shows that the soil contains sufficient limestone. On acid soils the clover frequently starts growth with promise in the early spring, but later becomes sickly in appearance and finally dies out completely. Such behavior is practically always due to a sour condition of the soil [p. 475].

At the close of each chapter there is a list of exercises, some of which are in the form of experiments to be performed in the laboratory, though many of these may be carried out at home, no special apparatus being required. The lists of exercises are quite adequate in the sense of being suggestive and directing the pupil's attention to the immediate bearing of the facts studied upon practical problems within his own experience.

The book is a rather pleasing expression of the now generally accepted notion that chemistry should be so taught as to make it "assist the pupil in interpreting life," and seems well adapted for use in vocational courses in agriculture and home economics.

*Forge and machine-shop practice.*—The difference between using a well-written, well-organized text and using no text at all is often the difference between teaching with a conscious purpose and teaching in a haphazard way. Industrial arts work has generally been handicapped by traditions which insist that experience and knowledge can only be transmitted to another through direct personal contact and observation. The value of broad contacts formed through the medium of printed material has not been fully recognized. That it is not impossible to transmit technical information and the results of experience by means of the printed page is well demonstrated by Harcourt in his volume on forge practice.<sup>1</sup>

The book has much valuable information on materials and equipment which should cut down the amount of time required for lecture work on these subjects. The projects selected have been chosen on the basis of materials and processes involved. With such a type of organization the work outlined can be easily supplemented by special projects which the instructor may wish to introduce. Illustrations of the steps or operations necessary in making each project are unusually complete and adequate.

A second recent volume<sup>2</sup> of a somewhat similar plan and organization has to do with machine-shop work. The author has centered blocks of instructional material around the various machines that are used in the shop, supplementing these with a chapter on bench and vise work and another treating of

<sup>1</sup> R. H. HAR COURT, *Elementary Forge Practice*. Peoria, Illinois: Manual Arts Press, 1920. Pp. 154. \$1.50.

<sup>2</sup> T. J. PALMATEER, *Elementary Machine Shop Practice*. Peoria, Illinois: Manual Arts Press, 1920. Pp. 123. \$1.50.

lathe tools and tool steel. The processes involved in each unit of instruction are brought out by a number of carefully chosen problems for each. The sequence of operations for each problem is outlined in detail.

Throughout the text there is a great deal of informational material concerning tools, equipment, and the various kinds of stock used. The illustrations and cuts of machines are particularly complete.

At the end of each unit of instruction a list of questions is given to focus the thinking of the student on the important phases of the work covered. The questions are well chosen and of a nature to stimulate active thinking and investigation on the part of the pupil.

The volume should prove a valuable addition to any shop library as a supplementary text. For the teacher of large classes of beginners it should lift the burden of much class work and explanation if placed in the hands of the pupils as a text.

### CURRENT PUBLICATIONS RECEIVED

#### GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

DEARBORN, WALTER F. *Stencils For (Series I) General Examinations 1, 2, and 3, Dearborn Group Tests of Intelligence*. Philadelphia: J. B. Lippincott Co., 1920.

EDWARDS, E. S. *The Fundamental Principles of Learning and Study*. Baltimore: Warwick & York, 1920. Pp. 239. \$1.80.

LA'RUE, DANIEL WOLFORD. *Psychology for Teachers*. New York: American Book Co., 1920. Pp. 316.

MARTIN, LILLIAN J. *Mental Hygiene*. Baltimore: Warwick & York, 1920. Pp. viii+89. \$1.40.

REED, ANNA Y. *Junior Wage Earners*. New York: Macmillan Co., 1920. Pp. xii+171.

ROBBINS, CHARLES L. *The Socialized Recitation*. Boston: Allyn & Bacon, 1920. Pp. viii+100.

SEARS, J. B. *The Boise Survey*. Yonkers-on-Hudson, New York: World Book Co., 1920. Pp. 290. \$2.25.

THOMPSON, CHARLES B. *Mental Disorders*. Baltimore: Warwick & York, 1920. Pp. 48. \$0.75.

#### BOOKS PRIMARILY FOR HIGH-SCHOOL TEACHERS AND PUPILS

BENEVENTE, JACINTO. *El Principe que todo lo aprendió en los libros*. Edited by Aurelio M. Espinosa. Yonkers-on-Hudson, New York: World Book Co., 1920. Pp. xvi+87.

BOTSFORD, GEORGE WILLIS, and BOTSFORD, JAY BARRETT. *A Brief History of the World*. New York: Macmillan Co., 1920 [revised]. Pp. xv+554.

- BROWN, H. A. *Latin in Secondary Schools*. Oshkosh, Wisconsin: State Normal School, 1919. Pp. x+170.
- CARDON, LEOPOLD, and WEEKS, RAYMOND. *A la Maison Française*. Boston: Silver, Burdett & Co., 1920. Pp. vi+211.
- CARNAHAN, DAVID HOBART. *Short French Review Grammar*. Boston: D.C. Heath & Co., 1920. Pp. x+159. \$1.20.
- DURELL, FLETCHER, and ARNOLD, E. E. *A Second Book in Algebra*. New York: Charles E. Merrill Co., 1920. Pp. iv+330.
- ELSON, HENRY WILLIAM. *History of the United States of America*. New York: Macmillan Co., 1920. Pp. xxxiv+982+xl.
- FRANCE, ANATOLE. *Le Crime de Sylvestre Bonnard*. Edited by J. L. Borgerhoff. Boston: D. C. Heath & Co., 1920. Pp. 203.
- GALE, ARTHUR SULLIVAN, and WATKEYS, CHARLES WILLIAM. *Elementary Functions and Applications*. New York: Henry Holt & Co., 1920. Pp. xx+436.
- GOOD, FREDERICK F. *Laboratory Projects in Physics*. New York: Macmillan Co., 1920. Pp. xiii+267.
- Harper's Atlas of American History*. With map studies by Dixon Ryan Fox. New York: Harper & Brothers, 1920. Pp. 181.
- HAZEN, CHARLES DOWNER. *Modern Europe*. New York: Henry Holt & Co., 1920. Pp. xiii+855.
- KAVANA, ROSE M. *The Elements of English Composition*. Boston: Richard G. Badger, 1920. Pp. 391. \$2.50.
- MÉRIMÉE, PROSPER. *Colomba*. Edited by Richmond Laurin Hawkins. New York: Henry Holt & Co., 1920. Pp. xv+339.
- NEILSON, WILLIAM ALLAN, and THORNDIKE, ASHLEY HORACE. *A History of English Literature*. New York: Macmillan Co., 1920. Pp. xii+467.
- Representative British Poetry*. Edited by Rowena Keith Keyes. New York: Charles E. Merrill Co., 1920. Pp. 174.
- Short Stories of Various Types*. Edited by Laura F. Freck. New York: Charles E. Merrill Co., 1920. Pp. 327.

PUBLICATIONS OF THE UNITED STATES BUREAU OF EDUCATION AND  
SIMILAR MATERIAL IN PAMPHLET FORM

- Old South Leaflets: No. 218. *John Bright and the American Civil War*. Edited by Lawrence V. Roth. No. 219. *The Northwest Fur Trade, and the Indians of the Oregon Country*. By William Sturgis. No. 220. *California in 1846-48*. By Walter Colton. No. 221. *The Hawaiian Islands in 1822*. By C. S. Stewart. Boston: The Old South Association, 1920. \$0.05 each.

Recent issues of the Bureau of Education:

- Bulletin No. 65, 1919—*The Eyesight of School Children*.  
Bulletin No. 85, 1919—*Development of Agricultural Instruction in Secondary Schools*.

- Bulletin No. 86, 1919—*Administration and Supervision of Village Schools.*  
 Bulletin No. 20, 1920—*Salaries in Universities and Colleges.*  
 Bulletin No. 28, 1920—*Monthly Record of Current Educational Publications. Index. February 1919-January 1920.*  
 Bulletin No. 29, 1920—*The National Crisis in Education.*  
 Library Leaflet No. 12, October, 1920—*List of References on Educational Surveys.*  
 Secondary School Circular No. 6—*Junior High School Mathematics.*  
 Teacher's Leaflet No. 11, October, 1920—*Rural School Playground and Equipment.*

## MISCELLANEOUS PUBLICATIONS

- BAKEWELL, CHARLES M. *The Story of the American Red Cross in Italy.* New York: Macmillan Co., 1920. Pp. xi+253. \$2.00.  
 CAJORI, FLORIAN. *A History of the Conceptions of Limits and Fluxions in Great Britain.* Chicago: Open Court Publishing Co., 1919. Pp. viii+299.  
 COOK, MELVILLE THURSTON. *College Botany.* Philadelphia: J. B. Lippincott Co., 1920. Pp. x+392.  
 FIFE, GEORGE BUCHANAN. *The Passing Legions.* New York: Macmillan Co., 1920. Pp. 369. \$2.00.  
 HUNGERFORD, EDWARD. *With the Doughboy in France.* New York: Macmillan Co., 1920. Pp. 291. \$2.00.  
 ROGERS, ROBERT WILLIAM. *Great Characters of the Old Testament.* New York: Methodist Book Concern, 1920. Pp. 205.  
*The Poems of Robert Burns.* Edited by James L. Hughes. New York: George H. Doran Co., 1920. Pp. xviii+292.  
 WELLS, H. G. *The Outline of History.* New York: Macmillan Co., 1920. Vol. I, pp. xix+648. Vol. II, pp. x+676. \$10.50 set.

